Report of the ERIC [NCERT] Sponsored Research Project

A Comparative Study of the Status and Effectiveness of Vocational Teaching-Learning in Agriculture

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FOREWORD

Vocational Education Programme at the higher secondary stage was introduced in the country to provide opportunity to students to opt for courses, through which they can develop the competence needed to perform in the world of work

The VEP implemented by various States/UTs with different fervour The national guidelines for implementation of the VEP in the country, provided by PSSCIVE (NCERT), has been adopted by the States, with changes There are also some perceived negative consequences of the diversification from the national guidelines As a result, differences exist in management structure, curriculum design, and availability of both physical and human resources, teaching and learning among the States The imbalances in implementation of the vocational curriculum at the Institutional level are caused by differences in availability of infrastructure, tools and equipment, raw materials, teachers and supporting staff This has apparently affected the teaching-learning process. There are also differences in appointment of professional administrators, training of teachers, instructors, supporting staff, which has not been given desired attention, with the result that the implementation and expansion of the programme is affected

Researches are, therefore, needed to make in-depth studies to identify the reasons and factors, which require more attention for effective implementation of teaching-learning process in vocational education Dr V.S Mehrotra, Principal Investigator of the project took up the task of studying the status and effectiveness of teaching-learning in an agriculture based vocational course offered in Maharashtra and Uttar Pradesh States to assess the factors affecting the teaching and learning

I hope the finding of this study will give enough material to think and ponder to those concerned with the implementation of Vocational Education Programme in the states, though the conclusions drawn from the study may need to be debated and discussed at length

(S.Z Haider)

Preface

Research data and findings are important for understanding problems and solving them systematically One of the advantages of the scientific investigations is that the findings validating or rejecting the hypothesis or prejudices can be utilized for bringing about qualitative improvement in the implementation of any scheme or programme. In this backdrop an attempt was made to study the status and relative effectiveness of teaching and learning in agriculture based vocational course in Maharashtra and Uttar Pradesh Teaching and learning is a complex process, as it involves inter and intra-relationships between the variables in physical and human realm Besides individual influences, interaction of the variables in the two realms significantly affects the teaching-learning process

Some implications for teaching and learning in the agriculture based vocational course have been drawn, which might be useful in improving the process of teaching and maximizing learning on the part of the pupils The findings of the study calls for large-scale efforts on the part of the planners, educators, and implementers to make the teaching and learning process in agriculture based vocational courses more effective for developing the psychomotor skills

In spite of the best efforts some errors and omissions are likely to persist I shall be grateful for suggestions from any quarter.

(V.S. MEHROTRA)

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EXECUTIVE SUMMARY

Executive Summary

Vocational education can be defined as an instrument for enhancing knowledge, skills and attitude directed towards a particular occupation The Vocational Education Programme (VEP) at the higher secondary stage was launched in the country in 1976-77, with the objectives to enhance individual employability, reduce the mismatch between the demand and supply of skilled manpower, and to provide an alternative to those pursuing higher education, without any particular interest or purpose

The vocational courses offered at the higher secondary stage are of two years duration and cover a wide variety of areas like agriculture, engineering and technology (including information and communication technology) business and commerce, home science, health and para-medical services and humanities. The curriculum designed by the erstwhile Department of Vocationalization of Education of NCERT and now known as the PSS Central Institute of Vocational Education suggests that the vocational courses should have essentially the following three major components· (i) Languages, (ii) General Foundation Course (Entrepreneurship Development, Environmental Education and Rural Development), (iii)Vocational theory and practice, including on-the-job training. As per the national guidelines, out of 1000 instructional hours for a vocational course, 300 hrs should be allocated for Languages and General Foundation Course (theory and practice), 600 hrs for Vocational theory and practice and 100 hrs for On-the-Job training.

The Centrally Sponsored Scheme on Vocationalisation of Education, launched in the country in 1988 provides broad guidelines for management, curriculum design, infrastructure, vocational surveys, instructional materials, teachers and their training, school industry linkages, apprenticeship training, examination and certification, modification of recruitment rules and funding norms for various components of Vocational Education Programme. The CSS has made provision of full-time as well as part-time teachers to transact vocational courses Three different types of teachers are needed for effective transaction of vocational curriculum. (i) teacher for general, cultural or scientific subjects (e.g., language, environmental education, rural development, etc); (ii) teacher for specialized vocational theory (for explaining scientific principles, facts and figures, etc.) and (iii) instructor for vocational practice (e.g , operation of tools, equipment, machines, etc.). So far, there is no pre-service training programme for preparing vocational teachers.

Basic qualification for a full-time teacher was suggested as Master's degree in the subject/vocation concerned. It was also suggested that there should be at least one full-time teacher for each vocational course and the professionals already in job or retired could be hired as part-time teacher.

The implementation of the VEP is in the hands of the State Governments, though a substantial part of the funding comes from the Central Government. Considerable differences exist in the formation of administrative structures, location of schools, formulation of curricular design, availability of infrastructural facilities and collaborative patterns amongst the States Hence, there is lot of variation in the implementation of the VEP among the states The pace and effectiveness of implementation of VEP differs from state to state

1.0 *Status of VEP in Maharashtra*

Maharashtra introduced the vocational education programme in the State in 1978-79 The Directorate of Technical Education was entrusted the task of planning and executing vocational education programme. Later, the implementation of VEP was assigned to the Directorate of Vocational Education and Training (DVE&T). In 1988-89, 20 Minimum Competency based Vocational Courses (MCVC) was introduced in 169 higher secondary schools/ junior colleges. The VEP was expanded in 1989-90, with an additional 150 schools offering vocational courses in the area of Agriculture, Business and Commerce, Paramedical, Engineering and Technology and Home Science In 1999-2000, there were 1076 schools offering 31 vocational courses, with an enrolment capacity of 67, 340 students.

The DVE&T has developed 58 textbooks for 19 vocational courses in consultation with the State Board of Higher Education, Pune and Maharashtra State Board of Vocational Examination, Mumbai. One post of Full-time teacher and one post of full-time Instructor have been provided for each vocational course

2.0 *Status of VEP in Uttar Pradesh*

Uttar Pradesh introduced the Vocational Education Programme at the intermediate level (+2 level) in 1985-86. Eight agriculture based vocational courses were started in 144 schools during 1987-88.

A vocational education wing was set up in the Directorate of Education. There are no full-time vocational teachers in schools of Uttar Pradesh. Teachers are drawn from the community on part-time basis Arrangement for 10 days in-service training is made by the State Government to provide necessary competencies to the teachers. Part-time teachers engaged by the Institutions can be categorized into three types: (i) experts, with specialization in one vocation; (ii) experts, who can take classes of two vocational courses; and (iii) more than one expert for taking classes of a vocational course. Teachers of the academic stream also take classes of vocational students. The theory part of vocational courses is usually taken up by the teachers of academic stream. There is a provision for payment of remuneration to part-time teachers @ Rs. 50 per lecture. Guidelines for teaching vocational courses have been developed for the teachers by the SCERT.

The U P State Book Corporation has published textbooks for few vocational courses.

3.0 *Need and Justification of the Study*

There is no specific study on the status and effectiveness of teaching-learning in agriculture based vocational courses in the country A clear picture on agriculture based vocational programme is, however, expected to emerge from an in-depth study, which identifies the problems in the implementation of teaching-learning process. Maharashtra is one of the few States, where qualified full-time teachers and Instructors have been appointed on regular basis. However, in States, like Uttar Pradesh part-time teachers or Guest Faculties are engaged in teaching vocational courses

Therefore, it seems appropriate at this point of time to undertake a comparative study on the status and effectiveness of teaching-learning process in agriculture based vocational course, especially in relation to the impact of the teacher's appointment on teaching-learning

4.0 *Research Questions*

- What percentage of students is enrolled in agriculture-based vocational courses?
- Who is teaching vocational course (full-time or part-time teachers)?
- What is the qualification of teachers?
- What is the training profile of the teachers before and after entry?
- Do the teachers possess sufficient knowledge and skills related to the subject matter i.e content competencies
- Whether the teachers possess communication competencies
- What methods are being used in teaching of agriculture based vocational courses?
- What is the weekly teaching load of a vocational teacher?
- Whether the teachers employed for teaching vocational courses have undergone specialized training in the vocation
- Whether teachers participate in the development of curricula and instructional materials
- Whether professional experts are involved as part-time teachers to transact topics

5.0 *Objectives of the Study*

- To compare the teaching competence of Teachers of Horticulture and Nursery Vocational Course of Maharashtra and Uttar Pradesh States, respectively.
- To study the relationship between teaching competency of Vocational Teachers and achievements of students of Horticulture/Nursery vocational course offered in Uttar Pradesh and Maharashtra.

6.0 Methodology

A random sample of 30 schools from the 159 higher secondary schools/ junior colleges of Maharashtra offering Horticulture vocational course was taken, whilst all the 23 Intermediate colleges of Uttar Pradesh offering Nursery vocational course was taken for the study Population studied was the Principal, Teachers, and Students of institutions All Principals, teachers, and students of the schools were included in the study Three questionnaires, one each for (a) Principal of the school, (b) Teachers, and (c) Students were developed by a group of experts. The purpose of teacher's questionnaire was to gather information related to teaching facilities available and teaching strategies adopted The students' questionnaire contained questions on various aspects related to teaching and teacher's competence.

The purpose of the questionnaire was to collect information about the implementation of teaching-learning system in Horticulture/Nursery vocational course and to seek teachers and students view on the curriculum transaction of the vocational course

7.0 Results

The present study was conducted on 16 schools of Maharashtra and 3 schools of Uttar Pradesh The respondents from the MCVC colleges of Maharashtra include 16 Principals, 15 Vocational Teachers, 9 Instructors, and 210 Vocational Students The respondents from the Intermediate colleges of U P. include 3 Principals, 4 Vocational Teachers, and 14 Vocational Students In spite of best efforts, the response from the U P could not be increased and out of the 5 schools, which responded to the questions, 2 have informed that the vocational course is not being offered anymore

The findings of the study are summarized below

1. Out of 16 schools offering Horticulture vocational course in Maharashtra, 14 (88%) are located in rural areas, while 1 each is in semi-urban and urban area. In Uttar Pradesh, out of 3 schools, 2 (66%) are located in rural areas and 1 is located in semi-urban area

2 The present Institutional management structure is common to both vocational and general academic stream Out of 16 schools in Maharashtra, 15 were Government aided and only 1 was private school. In Uttar Pradesh, all the 3 schools sampled for the study were Government-aided schools

3. All the 16 schools studied in Maharashtra and 3 in U P are co-educational schools

4 Infrastructural facilities such as land, classroom, workshop, laboratory, equipment, water, electricity, and library are available in all the schools of Maharashtra and U.P studied

5 In Maharashtra, out of 16 schools, 11 (69 %) have employed supporting staff and 10 (63 %) have vocational counselors In U P , out of 3 schools, 2 (66 6%) have supporting staff and vocational counselor

6 In Maharashtra, except one, all other Principals do not possess any degree or professional qualification in agriculture for providing necessary guidance and leadership to the teachers for running the agriculture based vocational course In U P., none of the Principals had acquired professional qualification in agriculture or experience in vocational education

7 Whilst introduction of Horticulture vocational course in majority of the schools (74.8 %) of Maharashtra was done on the basis of the employment opportunities existing in the area, introduction of Nursery vocational course in all the schools of U P was done on the directives of the State Government

8 All the 16 schools had full-time vocational teachers and instructors in Horticulture vocational course in Maharashtra, whereas all the teachers in U.P. are hired on part-time basis

9 All the teachers teaching Horticulture vocational course in Maharashtra and Nursery vocational course in U.P are male

10. Out of 24 teachers and instructors, the highest number i e., 13 (54.1%) belonged to the age group of 31-35 years in Maharashtra, whereas in U P , out of 4 teachers, 2 belonged to the age group of 25-30 years.

11 In Maharashtra, out of 15 teachers, 9 of them possessed the post graduate qualification, with specialization in Horticulture, 3 of them possessed post graduate qualification with specialization in some other area related to Agriculture, 2 had done graduation with Horticulture and 1 was graduate in Agriculture. All the 9 Instructors in Maharashtra possessed the desired qualification of graduation in Agriculture In U P., out of 4 teachers, two do not have the post graduate qualification or specialization in Horticulture Only 1 teacher possessed the post graduate qualification

12 Whilst 54 2 % teachers and instructors in Maharashtra are having teaching experience ranging from 6-10 years, 66.7 % of vocational teachers in U.P are having teaching experience from 1-5 years

13. Sixty seven per cent teachers in Maharshtra attended the In-service teachers training programme, while only 25 % teachers in U P got the opportunity to attend the ITTP

14. Out of 9 instructors in Maharashtra, 4 (44%) had attended the training programme. Out of 4 instructors, 3 attended training of 36-35 days duration, whereas 1 attended training of 22-25 days duration.

15 In Maharshtra, a majority of schools i.e , 6 (37 5 %) are devoting 6 hrs per week for teaching of languages i e English and Marathi, whereas 100 % schools in U P are devoting only 4 hrs per week to teaching of languages i e , English and Hindi

16 Out of 16 schools, a majority of them i e 8 (50 %) are devoting 5 hrs per week to teaching of GFC Seven schools (43.7 %) are devoting 4 hrs and 1 school is devoting 6.0 hrs per week to teaching of GFC. In U P, all the 3 schools studied are devoting 4 1-4 5 hrs per week to teaching of GFC.

17 A majority of the schools i e., 8 (50%) in Maharashtra are providing theoretical instruction for 12 hrs in a week, while 100% schools studied in U P are providing theoretical instruction for just 7 hrs per week.

19. Out of 16 schools in Maharshtra, 8 (50%) is devoting 20 hrs per week, 7 (43.7%) is devoting 25 hrs per week and 1 (6.3%) is devoting 15 hrs week for conducting practical training of students In U.P., out of 3 schools, 2 (66 7%) are organizing practical training for students for 12 hrs per week and 1 (33 3%) is conducting practical training for 10 hrs per week

20. In Maharashtra, a majority of the students i.e 157 (74.8%) were of the view that the quality of the practical training provided to them is good Out of 14 students in Uttar Pradesh, 09 preferred not to respond to the question "whether they are receiving good practical training".

21. Out of 16 schools in Maharashtra, a majority of them i.e., 15 (93.8%) are organizing On-the-Job training and visits to agricultural farm for imparting practical training In Uttar Pradesh, however, out of 03 schools, only 01 school (33.3%) is organizing OJT and field visit to agricultural farm.

22. Out of 16 schools in Maharashtra,4 (25%) devote 1 hr/yr, 3 (18 6%) devote 2 hrs/yr, 2 (12 5%) allocate 120 hrs/yr and 1 (6.3%) each devote 4,12 and 48 hrs/yr on On-the-Job Training However, 4 schools (25%) did not organize OJT. In U.P., none of the schools is organizing OJT

23 In Maharashtra, all 16 teachers (100%) mentioned that textbooks and reference books are adequate, whereas in U.P. only 33.3% teachers mentioned that textbooks, practical manual and reference books are adequate. As regard the availability of practical manual in Maharashtra, 63 % teachers mentioned that they are adequate, 18.5 % expressed the inadequacy of the manual and another 18.5% mentioned that these are not available. About 63 % teachers from both Maharashtra and U.P. reported that the Teachers guide for both the courses are available.

24 Whilst 25 % schools in Maharashtra are using textbooks published by NCERT, none of the schools in U.P. is utilizing NCERT textbooks. 68.7% schools in Maharashtra and 66.6% schools in U.P. are using textbooks published by the respective State Textbook Corporation in regional language.

25. Teachers and Instructors view was sought to know whether they are satisfied with the teaching of agriculture based vocational courses in their school. Out of 24 teachers/instructors in Maharashtra, 20 (83.3%) were satisfied with the teaching, whereas 4 (16.7%) felt otherwise. In U.P., out of 4 teachers, 2 (50%) were unsatisfied with the teaching of agriculture based vocational courses in their school.

26. Teachers view was also sought to know whether they are satisfied with the competencies developed in students. In Maharashtra, out of 24 teachers/instructors, 16 (66.6%) were satisfied with the competence developed in their students, whereas 8 (33.3%) felt that the students do not possess the required competence. In U.P., out of 3 teachers, 2 (75%) were satisfied with the competence developed in their students to perform various skills related to practices in nursery and 1 (25%) felt otherwise.

27. All the students in Horticulture and Nursery vocational course were male.

28. In Maharashtra, out of 210 students, 118 (56%) belonged to the age cohort of 20-22 years, 80 (38%) belonged to the age cohort of 17-19 years and 12 (6%) belonged to the age group of 23-25 years. In U.P., all 14 students (100%) belonged to the age group of 17-19 years.

29. In Maharashtra, out of 210 students, a majority i.e., 127 (60.4%) were from OBC, 36 (17.2%) from General caste, 28 (13.4%) from SCs and 19 (9%) from ST. In U.P., out of 14 students, a majority i.e., 6 (42.9%) were from General caste, 5 (35.7%) belonged to the OBC and 3 (21.4%) were from SCs. None of the students belonged to the ST.

30 In Maharashtra, out of 210 students, a majority i.e , 119 (56 6%) opted for the Horticulture vocational course on the suggestion of teachers. In U P., out of 14 students, 9 (64 3%) took admission in vocational course because of their own interest A comparatively lower percentage of students in U P (35 7%) than in Maharashtra (56.6%) were influenced by the teachers for taking admission in vocational course.

31. It is interesting to note that most of the students in Maharashtra and U.P. (more than 60%) were aware of the benefits of the vocational education and therefore, took admission as it has better prospects of self-employment

32 Assessment of teachers' competence was sought from the students for systematic evaluation of classroom teaching More than 70% of the students in Maharashtra and Uttar Pradesh were of the opinion that the vocational teachers possessed 'very good' knowledge and skills related to the subject. Rest of the students was of the view that the teachers possessed 'good' knowledge and skills None of the students in both the States opined that the teacher possessed poor content competencies

33. A majority i e , 60 4% students of Horticulture vocational course in Maharashtra were of the view that the teachers possessed 'very good' communication competencies, whereas only 36.8% rated teachers as having 'good' communication skills. In Uttar Pradesh, however, a majority of the students (64.3%) were of the view that the teachers possessed good communication skills, while only 35.7% rated teachers as having very good communication skills.

34 Performance of vocational students in Class XI (1999-2000) revealed that in Maharashtra, a majority of the students (80.2%) scored marks ranging from 41-60 per cent, whereas in Uttar Pradesh, 100 per cent students scored marks ranging from 61-70%.

35 On comparison of the percentage passout during 1994-99, the data reveals that in Maharashtra, the passout percentage has remained constant through successive years. In Uttar Pradesh however, it has decreased sharply Interestingly in the year 1998-99, the average number of students, who appeared in the Class XII board examination, is 17 in both the States, but the passout percentage in Maharashtra was 52.9%, whereas in Uttar Pradesh, it was only 33.3%.

8.0 Suggestions from Principals and Teachers

The Principals and Vocational Teachers made the following suggestions for bringing about improvement in the teaching-learning process in schools.

Maharashtra

Principals

1. The Government should provide more grants for organizing practical and fieldwork
2. There should be a provision of Agriculture Assistant for organizing farm activities
3. State Government should provide adequate publicity to the course
4. Students should be provided opportunity for Apprenticeship Training.
5. Opportunity for higher learning in the vocation should be provided to the students.

Teachers

1. Curriculum should include more practical than theory.
2. Grant should be provided for establishing Production-cum-Training Centre.
3. Syllabus should be revised to suit the requirements for self-employment.
4. Semesterisation of vocational courses should be done to provide flexibility in offering of course
5. Adequate quantity of water for horticulture related activities should be available throughout the year.
6. Students should be provided opportunity for Apprenticeship Training.

Uttar Pradesh

Principals

1. Students who secure III division should be compulsorily diverted to vocational stream.
2. Instructional material for Nursery vocational course should be made available.
3. The State Government should provide facility for organizing exhibition.

Teachers

1. Plant nursery should be established in schools for providing practical training to students.

2 Instructional material for Nursery Vocational Course is not available
3 Enough time for teaching vocational courses is not available, as lot of time is spent on teaching the other subject i e agriculture, and in organizing other activities of school
4 Semester system should be adopted for ensuring continuous participation of the students and effective implementation of agriculture vocational course.
5 Monthly magazines/journals on Horticulture should be made available in library

9.0 Conclusions and Recommendations

The study suggests that implementation of teaching-learning in Horticulture vocational course in Maharashtra is better than the Nursery vocational course in U P There are various reasons behind the successful implementation of VEP in Maharashtra Some of these reasons are discussed below.

1 A separate management structure at various levels to effectively coordinate and monitor the implementation of VEP
2. Introduction of vocational courses is based on the vocational opportunities in the area
3 Vocational teachers and instructors have been appointed on regular basis and possess the stipulated qualification, though some of them lack professional field experience.
4. In-service training of majority of teachers and instructors.
5. Teachers possess good content and communication competencies.
6 Sufficient time has been allocated for teaching languages, General foundation Course and vocational theory and practical vis-à-vis the recommendations of the national guidelines
7 On-the-job training is being organized by a majority of the schools, though sufficient time has not been allocated
8 The examination results of vocational students are reasonably good
9. Enrolment of students in Horticulture vocational course is reasonably good.

In Uttar Pradesh, there are major constraints and limitations, which has adversely affected the teaching-learning process in the State Some of these are broadly discussed below:

1 Only a separate vocational wing has been created in the Directorate of Education to coordinate and monitor the implementation of VEP at the State level, which has no effective support of the Officers at the district level, as the additional posts

sanctioned for the District Inspector of Schools have not been filled.

2. Introduction of vocational courses is not based on the vocational opportunities in the area, as a result the students enrolment and training is adversely affected
3. Vocational teachers have not been appointed on regular basis and most of them lack professional field experience
4. There is no provision of instructors or Agriculture Assistants for imparting practical training
5. Sufficient time has not been allocated for teaching languages, General foundation Course and vocational theory and practical vis-à-vis the recommendations of the national guidelines
6. Organization of on-the-job training is not being done and only few schools are involved in activities for providing practical training outside the school, such as visits to farm, etc.
7. The examination results are not very encouraging and enrolment of vocational students is sharply decreasing over the years

10.0 Educational Implications

The findings of the present study could be utilized for designing appropriate interventions in the teaching-learning process. Some of the implications of the findings are discussed, which can be utilized to formulate suitable strategies for providing interventions in teaching and learning.

(a) Training of Teachers

The in-service training programmes for the teachers should be of at least 15 days duration. Besides intensive subject-specific training, pedagogical content knowledge should also be given during the training The teaching methodology during the training should be mix of lecture, demonstration, project assignment, seminar, group discussion, etc., with major emphasis on hands on practice of various subject-specific activities. The training programmes should also include activities, such as Yoga, meditation, physical exercises, which prepare teachers in stress management and build a more positive attitude Providing vocational teachers with opportunities to upgrade their technical and teaching skills and abilities will help in keeping up their morale high, which would ultimately be useful in enhancing student achievement and increasing student enrolment rate Role preparedness should be the focus of all teacher-training programmes.

(b) Institutional Training Plan

Institutions should develop a training plan, which sets out the training goals, considers how teachers/trainers will contribute to achieving the plan and specifies how learning and training outcomes will be met.

(c) Curriculum Transaction

Curriculum transaction should take place both in school and industry (enterprise/orchards/farm/botanical gardens) Provision of block time instruction would provide an opportunity to combine various methods of instruction for effective teaching-learning. Learners are to be given work to be done individually or in small groups. It will helps them consolidate their learning, learn to communicate, and achieve the time target. The course of study should be organized in such a way that even the holidays of the students can be utilized in introducing practical orientation of the students There should not be pre-scheduled recesses in the programmes Recess should be according to the nature of work or as and when the teacher/trainer feel the need of relaxation.

(d) Teaching Methodology

One major inference that can be drawn from the findings of the study is that the teaching methodology in agriculture based vocational courses is lecture-oriented and teacher centered. It has to be an appropriate mix of lecture method, practical training, assignments, projects, and experimentation, with major emphasis on the hands-on training Training to the students should be provided by the progressive farmers/horticulturists and entrepreneurs and the teachers must work closely with them for ensuring transfer of skills from the trainers to the students Availability of farm tools, equipment and machinery and other materials should be ensured to provide necessary training support.

INTRODUCTION

Chapter 1

Introduction

Vocationalization of Education implies an organized way of development of work- related skills at various stages of education for laying a strong foundation of competencies and to prepare for the world of work Various Commissions and Committees appointed by the Government of India for providing direction to the educational process and formulating policy perspectives have emphasized the need to provide vocational education for meeting the challenges at the macro and micro-level of any society Vocational education can be defined as an instrument for enhancing knowledge, skills and attitude directed towards a particular occupation One of the recommendations of the Kothari Commission (1964-66) was the diversion of students to vocational education at the school stage It suggested that secondary education should be vocationalized in a large measure and enrolment in vocational courses raised to 20 per cent of the total enrolment at the lower secondary stage and 50 per cent of total enrolment at the higher secondary stage by 1986 The Commission clarified that the vocational courses should be predominantly terminal in character, with adequate opportunities for the exceptionally gifted child to rejoin the mainstream and move higher through further study. To bring about the envisaged internal restructuring and modification, a document entitled " Higher Secondary Education and Its Vocationalization", which deals with various issues pertaining to diversification, flexibility (including the semester system approach), district surveys, identification of important vocational courses, admission, integration of part-time courses into the system, teacher orientation and evaluation was brought out by the NCERT in 1976 to provide guidelines for implementation of Vocational Education Programme (VEP)

The VEP at the higher secondary stage was launched in the country in 1976-77, with the following objectives.

(i) to enhance individual employability,
(ii) to reduce the mismatch between the demand and supply of skilled manpower; and
(iii) to provide an alternative to those pursuing higher education, without any particular interest or purpose

The National Policy on Education (1986) and the Programme of Action (1986, revised in 1992) stressed the need for a well planned, systematic and vigorously implemented programme of vocationalization of education in the country The NPE set a target to cover 10 per cent of the higher secondary students under vocational courses by 2000 (MHRD, 1986)

A Centrally Sponsored Scheme (CSS) of Vocationalization of Higher Secondary Education was launched in February 1988 for providing financial support to VEP The scheme provides broad guidelines for management, curriculum design, infrastructure, vocational surveys, instructional materials, teachers and their training, school industry linkages, apprenticeship training, examination and certification, modification of recruitment rules and funding norms for various components of VEP (MHRD, 1988) The CSS has made provision of full-time as well as part-time teachers to transact vocational courses Basic qualification for a full-time teacher is Master's degree in the subject/vocation concerned In addition, exposure of teachers to work place practices/industrial activities for a year was suggested as an essential qualification for the post of lecturer/ instructor In case of non-availability of candidates with post graduate degrees, especially in Medical and Engineering and Technology area, the scheme has suggested alternative qualifications i e , degree or diploma in the desired subject It was also suggested that there should be at least one full-time teacher for each vocational course and the professionals already in job or retired could be hired as part-time teacher. The CSS is continuing, except for a gap of first two years (1997-1999) of Ninth Five Year Plan According to report of the Operational Research Group (ORG) submitted to the MHRD in 1996, only 4.8% students are opting for vocational stream as against a target of 10 % by 2000

1. Implementation of VEP

In India, the implementation of the VEP is in the hands of the State Governments, though a substantial part of the funding comes from the Central Government Considerable differences exist in the formation of administrative structures, location of schools, formulation of curricular design, availability of infrastructural facilities and collaborative patterns amongst the States (Mishra, 1996) Hence, there is lot of variation in the implementation of the VEP among the states. The pace and effectiveness of implementation of VEP differs from state to state.

The vocational courses offered at the higher secondary stage are of two years duration and cover a wide variety of areas like agriculture, engineering and technology (including information and communication technology) business and commerce, home science, health and para-medical services and humanities The curriculum designed by the erstwhile Department of Vocationalisation of Education of NCERT and now known as the PSS Central Institute of Vocational Education suggested that the vocational courses should have essentially the following three major components

(i) Languages
(ii) General Foundation Course- It includes Entrepreneurship Development, Environmental Education and Rural Development
(iii) Vocational theory and practice, including on-the-job training

It was also suggested that 30% weightage should be given to Language(s) and the General Foundation Course and 70% weightage to Vocational theory and practice. The instructional time recommended by the PSSCIVE, NCERT in terms of total working hours per week for transaction of curriculum of vocational course is 28 hrs and total working time for the year is 1000 hrs Out of 1000 hrs, 300 hrs are allocated for language, General Foundation Course (theory and practice), 600 hrs for Vocational theory and practice and 100 hrs

for On-the-Job training The distribution of time per week among different components is given below

Component	Hrs/week
Language	6-8
General Foundation Course	4-5
Vocational theory And practice	27-28

The National Curriculum Framework for School Education (NCERT, 2000) envisages that the curriculum for vocational courses should also include Health and Physical Education as one of the compulsory components It also recommends that the General Studies and Information and Communication Technology should form an integral part of the General Foundation Course

Three different types of teachers are needed for effective transaction of vocational curriculum (i) teacher for general, cultural or scientific subjects (e.g , language, environmental education, rural development, etc), (ii) teacher for specialized vocational theory (for explaining scientific principles, facts and figures, etc.) and (iii) instructor for vocational practice (e.g , operation of tools, equipment, machines, etc.) So far, there is no pre-service training programme for preparing vocational teachers. The in-service teacher training programmes of different durations are conducted by PSSCIVE and State Governments

1.1 Status of VEP in Maharashtra

Maharashtra introduced the vocational education programme in the State in 1978-79 The Directorate of Technical Education was entrusted the task of planning and executing vocational education programme The curricular pattern of the bifocal programme provides for the study of two language, two optional subjects from general education and one vocational subject in lieu of one language and one optional subject. In 1988-89, 20 Minimum Competency based Vocational Courses (MCVC) was introduced in 169 higher secondary schools/ junior colleges The MCVC are based on the curriculum design recommended by the erstwhile Department of Vocationalisation of Education of the National Council of Educational Research and Training The VEP was expanded in 1989-90, with an additional 150 schools offering vocational courses in the area of Agriculture, Business and Commerce, Paramedical, Engineering and Technology and Home Science. In 1999-2000, there were 1076 schools offering 31 vocational courses, with an enrolment capacity of 67, 340 students.

1.1.1 Management Structure

The Government of Maharashtra created the following management structure for effective implementation of the Vocational Education Programme at various levels in the state

State	No. of Post	District	No.of Post	Institution	No. of Post
(Directorate of Vocational Education & Training)		**District Vocational Education Office**		**MCVC Colleges**	
Director	1	Dist Voc Edu and Trg.Officer (DVETO)	1		
Jt Director	1				
Dy. Director	3	Dy DVETO (Tech)	1	Vice Principal (Voc)-proposed for those Inst where minimum 3 voc courses sanctioned.	1
Asst. Director (Tech)	2	Dy DVETO (Adm)	1		
Asst. Director (Admn)	1	Research Asstt Office Supdt	1 1		
Office Supdt	2	Statistical Asstt /Accountant	2	Full-time Teacher	1 per voc course
Noting Asstt / Accountant	5	Counselor	1	Full Time Instructor	1 per voc course
Stenographer (Lower Grade)	3	Stenographer (Lower Grade)	1	Jr. Clerk/ Typist	1 per Institute
Jr. Clerk	3	Jr Clerk Typist	2	Class IV	1 per Institute
Peon	1	Driver Peon	1 1		
Total	22		13		

Source. Directorate of Vocational Education and Training, Mumbai.

1.1.2 Vocational Courses

The following Minimum Competency Based Vocational Courses (MCVC) in the area of Agriculture are running in the State:

1 Horticulture
2 Crop Science
3. Dairy Technology
4 Plant Protection
5 Poultry Production
6. Seed Production Technology
7 Sericulture
8 Agricultural Chemicals
9 Fish Processing Technology
10 Inland Fisheries

1.1.3 Scheme of Studies

(a) Minimum Competency based Vocational Course

Part	Subject		Marks		Total Marks
			Theory	Practical	
Language	i	English	100	000	100
	ii	Marathi	100	000	100
GFC			100	000	100
Vocational Subjects	i		100	50	150
	ii		100	50	150
	iii		100	50	150
Total			600	150	750

(b) Bifocal Vocational Course

Part	Subject	Marks		Total Marks
		Theory	Practical	
Language	English	100	000	100
Academic Subjects	i Maths	80	20	100
	ii Physics	80	20	100
	iii. Chemistry	80	20	100
Bifocal Subject	Vocational	100	100	200
Total		440	160	600

1.1.4 Instructional Material

The Directorate of Vocational Education and Training (DVE&T) has developed 58 textbooks for 19 vocational courses in consultation with the State Board of Higher Education, Pune and Maharashtra State Board of Vocational Examination, Mumbai

1.1.5 Teachers

In Maharashtra one post of Teacher and one post of Instructor are provided per vocational course The course-wise number of post of Teachers and Instructor are given below

S.No.	Course	No. of Teacher	No. of Instructor
1.	***Horticulture***	***159***	***159***
2.	Crop Science	81	81
3	Dairy Technology	40	40
4	Plant Protection	7	7
5.	Poultry Production	26	26

6	Seed Production Technology	8	8
7	Sericulture	2	2
8	Agricultural Chemicals	2	2
9.	Fish Processing Technology	1	1
10.	Inland Fisheries	14	14

Source : Directorate of Vocational Education and Training, Mumbai.

1.1.6 Enrolment

The enrolment in agriculture based vocational courses is tabulated below

Name of the Course	97-98	98-99	99-2000
Horticulture	1890	2132	2781
Crop Science	1125	1380	1461
Dairy Technology	505	594	694
Plant Protection	71	71	16
Poultry Production	263	277	286
Seed Production Tech	110	118	33
Sericulture	14	22	--
Agriculture Chemicals	12	24	--
Fish Processing Tech	--	--	--
Inland Fisheries	175	225	183
Total	4165	4843	5454

Source: Directorate of Vocational Education and Training, Mumbai.

1.1.7 Results of Board Examination

The results of the board examination in vocational courses of all vocational areas, during 1997-2000 are given below

Year	No of Students appeared for 12th Class Examination	No. of Pass outs	Pass out Percentage
1997-98	35569	16796	47 22
1998-99	36018	22176	61 57
1999-2000	47599	38050	79 94

Source. Directorate of Vocational Education and Training, Mumbai.

1.2 Status of VEP in Uttar Pradesh

Uttar Pradesh has 6,000 Intermediate Colleges The State Government introduced the Vocational Education Programme at the intermediate level (+2 level) in 1985-86 In the first phase of the programme, 126 schools started 8 vocational courses in the area of Business and Commerce. During the second phase, which was initiated in 1986, 160 schools introduced 4 Home Science based vocational courses. The third phase of the programme witnessed the introduction of 8 agriculture based vocational courses in 144 schools during 1987-88 The State Government aided VEP continued till 1990-91, thereafter

the programme was merged with the Centrally Sponsored Scheme of Vocationalization of Secondary Education

During the 4th phase of the programme, vocational courses were introduced in the schools on the basis of District Vocational Surveys conducted by the State Council of Educational Research and Training (SCERT), Lucknow in 62 districts The selection of the schools for introduction of vocational courses is done by the district level selection committee on the following basis

(i) Availability of land for workshed construction
(ii) No dispute in school management
(iii) Permanent post of Principal
(iv) Availability of students
(v) School is up to Higher Secondary Stage
(vi) School is preferably located in rural area
(vii) Past examination result of the school is good

In the 5th phase of the VEP, the vocational courses were running in 910 secondary schools Out of 910 schools, 192 are Government schools and 718 are Government aided schools. About 75% of the schools are located in rural areas Vocational courses are running in about 18% boy's school and 82% girl's school The State Government received Rs 400 lakhs from the Government of India for introducing vocational courses in additional 100 schools during the 6th phase of the VEP

A sum of Rs 2 lakhs is given to each school for construction of 2 workshed and 2 stores and purchase of equipment Since there is no separate budget for maintenance of equipment, the expenditure on equipment is generally done from the fund generated through Parents-Teachers Association or from donation by the students An allocation of Rs 3,000 has been made for purchase of raw materials for each course. In addition, a sum of Rs 100/- per student for a maximum of 15 students per course is given to the school for conducting field visits This is being provided from 1996-97

1.2.1 Management Structure

A vocational education wing has been set up in the Directorate of Education, with the following posts.

At State Level

S No	Posts	Sanctioned	Filled Up
1	Additional Director	1	1
2	Deputy Director	1	1
3	Stenographer	1	1
4	Senior Assistant	1	1
5	U D C	1	1
6	L D C	2	2
7	Peon	1	1
8	Computer Assistant	1	1

At District Level

S No	Posts	Sanctioned	Filled Up
1	Additional District Inspector of School	60	--nil--
2	Statistical Assistant	120	--nil--

1.2.2 Vocational Courses

The vocational courses running in agriculture related areas in U P are enlisted below area-wise

1 Bee-keeping
2 Crop Protection
3. Dairy Technology
4. Fruit Preservation Technology
5 Nursery
6. Seed Production Technology
7 Sericulture
8 Soil Conservation

1.2.3 Scheme of Studies

S No.	Subject	Marks	Weightage (%)	Paper
1	Language (Hindi)	100	10	3
2.	Optional Subject (1 out of 48 subject)	100	10	2 or 3
3	General Foundation Course	100	10	2
4	Vocational course (a) Theory (b) Practical	 300 400	 30 40	 5 --
	Total	1000	100	12 or 13

Practical examination is of 400 marks, out of which 200 marks have been allotted for internal assessment and 200 for external examination The total pass marks for theory is 33 %, whilst for practical it is 50 %.

1.2.4 Instructional Material

The U P. State Book Corporation has published textbooks for few vocational courses Books published by private publishers, which cover more than 50% of the syllabus have been prescribed as reference books

Guidelines for teaching vocational courses have been developed for the teachers by the SCERT. Guidelines for the following agriculture-based vocational courses are available:

1. Dairy Technology
2 Nursery
3 Seed Production Technology

1.2.5 Teacher

There are no full-time vocational teachers in schools of Uttar Pradesh Teachers are drawn from the community on part-time basis Arrangement for 10 days in-service training is made by the State Government to provide necessary competencies to the teachers Part-time teachers can be categorized into three types (i) experts with specialization in one subject, who take classes of one vocational course, (ii) experts who can take classes of two vocational courses, and (iii) three to five experts taking classes of one vocational course

Teachers of the academic stream also take classes of vocational students The theory part of vocational courses is usually taken up by the teachers of academic stream There is a provision for payment of remuneration to part-time teachers @ Rs 50 per lecture. A maximum of Rs 1500 per month can be paid to the part-time teacher as remuneration. Seventy five per cent of the expenditure for payment of honorarium to the part-time teachers is borne by the Central Government and the rest 25% is borne by the State Government

1.2.6 Enrolment

The status of agriculture-based vocational courses during 1999-2000 is given below:

S.No	Vocational course	No of schools offering course	Enrolment of students in classes 11th and 12th	No of part-time teachers
1.	Nursery	23	232	46
2	Dairy Technology	04	41	08
3	Seed Production Technology	08	24	16
4	Sericulture	08	24	16
5	Fruit Preservation Technology	68	1700	136

Source: Directorate of Education, Lucknow, U P.

1.2.7 Results of Board Examination

The results of the board examination in vocational courses of all areas during 1997-2000 are given below.

Year	No of Students	Students appeared for 12th Class Examination	No of Pass outs	Pass-out (%)
1997-98	45000	23217	20252	87
1998-99	49990	28028	19531	69
1999-2000	62625	19821	14779	75

2. Need and Importance of the Study

Agriculture and its allied activities play an important role in the economy of our country Several states are, therefore, offering agriculture based vocational courses to attract a sizeable segment of local population for imparting knowledge and skills However, the acceptability and enrolment in agriculture based vocational courses is not growing, despite the efforts being made by various concerned institutions

According to a report on the status and prospects of vocational education programme in the area of agriculture (Sacheti, 1994), certain factors such as inadequate infrastructural facilities, scarcity of trained teachers and lack of instructional materials are responsible for the poor implementation of the teaching-learning process in some states There is no specific study on the status and effectiveness of teaching-learning in agriculture based vocational courses in states of the country. A clear picture on agriculture based vocational programme is, however, expected to emerge from an in-depth study, which identifies the problems in the implementation of teaching-learning process Maharashtra is one of the few States, where qualified full-time teachers and Instructors have been appointed on regular basis However, in States, like Uttar Pradesh part-time teachers or Guest Faculties are engaged in teaching vocational courses Therefore, it seems appropriate at this point of time to undertake a comparative study on the status and effectiveness of teaching-learning process in agriculture based vocational courses, especially in relation to the impact of the teacher's appointment on teaching-learning

3. Research Questions

Status of vocational teaching-learning

- What percentage of students is enrolled in agriculture-based vocational courses?
- Who is teaching vocational course (full-time or part-time teachers)?
- What is the qualification of teachers?
- What is the training profile of the teachers before and after entry?
- Who decides upon the content and methods of teaching?
- Whether infrastructural facilities in terms of land, water, equipment, laboratory are sufficient for the agriculture courses, being offered in schools?

Effectiveness of teaching and learning

- Do the teachers possess sufficient knowledge and skills related to the subject matter i e content competencies
- Whether the teachers possess communication competencies
- What methods are being used in teaching of agriculture based vocational courses?
- Whether the teachers are using new and innovative educational technologies
- What is the weekly teaching load of a vocational teacher?
- What is the time given for conducting practical classes?
- Whether the teachers employed for teaching vocational courses have undergone specialized training in the vocation

- Whether teachers participate in the development of curricula and instructional materials
- Whether professional experts are involved as part-time teachers to transact topics
- What is the performance of students in terms of percentage of marks scored in Class XI or XII?

4. Objectives of the Study

- To compare the teaching competence of Teachers of Horticulture and Nursery Vocational Course of Maharashtra and Uttar Pradesh States, respectively.

- To study the relationship between teaching competency of Vocational Teachers and achievements of students of Horticulture/Nursery vocational course offered in Uttar Pradesh and Maharashtra

REVIEW OF LITERATURE

Chapter 2

Review of Literature

The teaching-learning system consists of the teacher, the learner, and the knowledge to be taught Teaching-learning process (TLP) may be defined as the lively interaction between the 'teacher concerned with teaching' and the 'learner concerned with learning' and the 'subject matter' common to both (Gupta, 1990). McBeath (1999) points out that teachers and students do not exist in a vacuum, but are influenced by one another's expectations and behaviours. The main components of TLP can be classified as follows

(i) Objectives of teaching
(ii) Learning experiences
(iii) Evaluation

1. School Characteristics

School characteristics and processes influence the teaching-learning process It includes variables such as organizational structure and school size. School processes, which include factors related to activities such as leadership, supervisory practices and school climate also affects the teaching-learning process directly or indirectly.

2. Variables of Teaching-Learning Process

There are a variety of teaching-learning models that have been developed to organize the variables of the teaching learning process. Mcllrath and Huitt (1995) have reviewed the various models of teaching-learning A transactional model of teaching-learning process is given below for the sake of brevity:

A Transactional Model of the Teaching/Learning Process	
Context	All those **factors outside of the classroom** that might influence teaching and learning
Input	Those qualities or **characteristics of teachers and students** that they bring with them to the classroom experience
Classroom Processes	**Teacher and student behaviors** in the classroom as well as some other variables such as **classroom climate and teacher/student relationships**
Output	**Measures of student learning** taken apart from the normal instructional process.

Source: http.//ehiron.valdosta edu/whuitt/materials/mdltlp.html

The different variables in the teaching-learning process are

1. Independent variable e g , teaching functions
2. Dependent variable e g., pupil
3. Intervening variable e g , methods used for teaching, techniques of motivation, subject matter for teaching, etc

2.1 Teaching functions

Teaching is a communication process Usually the teacher sends a verbal message, which contains some information, to the learners who are expected to receive it and integrate it into their existing knowledge (Blum, 1996) Therefore, the communication skills, which include the oral, written or audio-visual techniques are of utmost important for a teacher to effectively teach a subject

The role and functions of teachers have undergone radical transformation A vocational teacher in particular should not be only a knowledge specialist, but also a vocational practitioner, programme designer, curriculum developer, resource materials producer, performance evaluator, counselor, facilitator and manager It is the teacher who translates the scheme into action through well thought out instructional plan in the classrooms, laboratories, agricultural fields, workshops, hospitals, banks, cooperative stores, hotels, etc Vocational teachers have an important role in making education relevant to the needs of the emerging society Some important teacher characteristics include teacher's values and beliefs, knowledge, thinking and communication skills, performance skills, and personality. He/she should also have a high level of computing, reasoning, analytical skills and decision - making abilities

While each of these is important to the classroom environment, teacher efficacy is one of the best predictors of student success from this subcategory (Proctor 1984, Ashton 1984). Teaching can be made effective by relating with learning, selecting effective teaching aids, creating learning situations, selecting appropriate teaching strategies and adopting a variety of tactics for achieving learning objectives Teachers have to take into account the stage of development and previous learning experiences of their students when deciding what, when and how to teach a certain topic

2.2 Teaching Methodology

Vocational teachers in agriculture have the dual responsibility of imparting knowledge and skills in agriculture course, as well as helping learners solve problems and build professional skills The role of the agriculture education teachers in the community in context of the changing agricultural environment demands that a teacher's skills and perceptions conform to the context of the cultural change (Somers, 1998) Successful teachers try to identify the type of motives, which activate different groups of students, and choose suitable teaching techniques to enhance students' motivation accordingly

The teaching methods adopted in curriculum transaction of vocational courses should help students organize their knowledge and facilitate Information processing and deep thinking A vocational teacher should be

thoroughly conversant with the changing educational technology to bring about change in use of methodologies and approaches to teaching

2.3 Teacher Behaviour

Miller *et al* (1989) classified teacher behaviour in five teacher performance areas (a) productive teaching techniques, (b) structured class management, (c) positive interpersonal relationship, (d) professional responsibilities, and (e) personal characteristics They also developed profile of the high teacher effectiveness group, which are as follows

(a) Productive Teaching Techniques

The effective agriculture teacher

1 Develops course activities, which reflect "lifelike" situations, relating current lessons to past lessons
2. Utilizes learning activities, which are designed to achieve predetermined objectives for the course
3 Motivates students by providing successful learning activities at each student's ability level, yet challenges students to higher scholastic expectations
4 Evaluate his/her performance and accepts honest feedback from students for continued improvement
5. Very often provides written comments on exams to facilitate student learning
6 Will sometimes need to further explain assignments to students even after directions are given
7. More often than not will design educational activities for the class as a whole rather than for individual students
8 Very often seeks the advice of experts in the subject matter he/she teaches
9 Usually helps students locate supplementary materials to subject matter content being covered in class

(b) Structured Class Management

The effective agriculture teacher

1 Utilizes long range plans to guide improvement of the vocational agriculture program
2 Establishes a given set of rules and procedures to manage student behaviour
3 More often than not will allow for student input when establishing classroom rules and procedures
4 Purposely adjust and rearranges the classroom to provide for a variety of learning activities within the classroom
5. Confronts students when they are not doing their assigned task
6 Presents information on the blackboard, which can be read by all students
7 Sometimes uses textbooks to provide most of the printed information given to students

(c) Interpersonal Relationships

The effective agriculture teacher

1 Encourages friendly and respectful relationships with students, feeling students within his/her class can be trusted
2 Rarely uses sarcasm in the classroom
3 Constructively criticizes students for further educational improvement
4. Keeps informed about students needing special assistance while willingly provides time to any student needing help.
5. Seeks ways to involve parents of students into program related activities.
6 Shares teaching ideas and methods with other teachers in the school
7 Sometimes categorizes students by their needs (cultural, academic, intellectual, etc)
8. Recognizes students for their efforts, which are worthy of praise.

(d) Professional Responsibilities

The effective agriculture teacher.

1 Demonstrates that he/she is a responsible person by completing duties in a timely manner.
2 Keep abreast of new developments within his/her profession through participation in workshops, field days, and seminars
3 Rarely bypasses school policy even if conditions warrant the action

(e) Personal Characteristics

The effective agriculture teacher

1 Usually displays personality traits such as humor and patience, which promote positive interaction with students
2 Usually feels enthusiastic towards his/her work
3 Feels capable of handling any of the challenges associated with his/her work and copies easily with the changing situations occurring within the classroom environment.

Cruichshank (1990) opined that effective teacher behaviour can be summarized into seven main clusters (i) teacher character traits, (ii) what the teacher knows, (iii) what the teacher teaches, (iv) what the teacher expects, (v) how the teacher teaches, (vi) how the teacher reacts to pupils and (vii) how the teacher manages the classroom.

3. Effectiveness of Teachers

It is a matter of great concern for the educationists, planners, and teacher-educators to produce effective teachers. Numerous co-relates of teacher effectiveness have been suggested, which include intelligence, academic qualification, subject-matter knowledge, emotional adjustment and job satisfaction, attitude favourable to students, strong interest in reading literary matters and student marks

Teaching can be made effective by relating with learning, selective effective teaching aids, creating learning situations, selecting appropriate teaching strategies and achieving learning objectives Gains in student learning are the best measures of teaching effectiveness, followed by student, peer and passed graduate evaluations

The effective performance of vocational teachers is the function of competencies (both academic and professional) acquired by them to perform tasks effectively and provide quality instruction By quality instruction, Bloom (1976) meant that teachers should

1 organise subject matter into manageable learning units,
2 develop specific learning objectives for each unit,
3 develop appropriate formative and summative assessment measures, and
4 plan and implement group-teaching strategies, with sufficient time allocations, practice opportunities, and corrective reinstruction for all students to reach the desired level of mastery

Coker and Coker (1982) identified certain key competencies, which are pre-requisites to effective teaching at any level They are· (i) Instructional strategies, techniques and/or methods, (ii) Communication with learners, and (iii) Learner reinforcement involvement It has been shown that if all these teacher behaviour are exhibited, then learning outcome will be enhanced On the other hand, a learner has to make use of knowledge of the teacher as an instrument to foster required skills and attitudes Effective communication ability would help a vocational teacher to effectively utilize teaching aids and transact curriculum Upadhyay and Soni (2002) noted that an instructor is rated high on the overall performance, if his/her communication is more effective. Communication effectiveness could be related to teaching effectiveness, as it helps in clearly communicating the subject matter to the learner

In order to make teaching-learning process effective, it is necessary to provide varied types of learning experiences The teacher should decide the quanta of knowledge and skills to be given to the students, the methodology to be adopted, and the various teaching aids to be used for providing a lively learning experience to the learner. Effective teaching requires that the students be offered the best possible chance to learn regardless of nature of the individual preferences (Gordon and Yocke, 1999)

The findings of many research studies concerned with the effectiveness of teachers are ambiguous, and little is presently known about teacher effectiveness (Barr, 1948, Berliner, 1985, Gordon and Yocke, 1999) Several factors like interaction between teachers and pupils in the classroom, teachers' behaviour with pupils, his attitude towards teaching, his personality, as well as professional preparation contribute towards effective teaching The quality of vocational education depends on skills and ability of the teachers For effective teaching, besides required knowledge and skills, teachers should have favourable attitude towards profession and they should have job satisfaction.

Teacher's style of enjoying his job may compensate for the lack of required personality traits and qualifications for his effectiveness at his job (Anand, 1992)

Job satisfaction is defined as a pleasurable positive emotional state, resulting in the appraisal of once job or job experiences (Locke 1996) Work situations and environments that enable attainment of desired outcomes are thought to increase job satisfaction (Castillo and Cano 1999) Job satisfying factors include achievement, recognition, work itself, responsibilities, and advancement

Mukhopadhyay (2002) opined that the maintenance, standards, and quality of classroom teaching-learning need to be improved significantly in the coming years He further suggested that this would require a multi-faceted approach of teacher development, removal of obsolescence, financial resources for experimentation and innovations, development of network libraries and sharing of resources among schools located in a cluster of villages/towns through exchange visits and use of modern technologies like television, audio and video instructional materials, internet and seminars and discussion forums

4. Learning

The UNESCO's report "Learning The Treasure Within" stresses the need for everyone to learn for four different purposes (ICE, 1996) The report describes these as four pillars of education viz Learning to know, (ii) Learning to do, (iii) Learning to live together, and (iv) Learning to be Fitts (1964) identified three stages in the learning of individual skills The first is 'cognitive stage' in which components and their order are identified along with basic standards of excellence. The second is a 'practice fixation phase' in which the skill is refined and consolidated into long-term memory through practice and feedback, and the third 'an autonomous phase', where the skill comes to be automatically performed. Teachers, teaching-learning tools, standards for learning outcomes and guidelines for curriculum transaction are some of the necessary inputs for raising learning standards.

4.1 Factors Affecting Learning

Student characteristics, which include study habits, learning style, age, sex/gender, race/ ethnicity, motivation, moral values, socio-emotional cognitive and character development affect the extent of involvement of the learner in the process of learning. These characteristics are important in the relationship of classroom processes/behaviour and school achievement (Huitt, 1995). However student aptitude and/or pre-requisite skills are probably the best student characteristics predictors (Bloom, 1971)

Student gain in knowledge is the preferred criterion used to identify teaching effectiveness There is a correlation between students' gain in knowledge and students evaluations of teaching Student evaluations of teaching could be considered for determining teacher effectiveness, but should not be the sole determinant Most theories of learning suggest that to be effective, learning need to be active (Khan and McWilliam, 1998).

Some of the factors that affect effective learning are application of various learning methods and readiness of pupils. Effective learning involves the following outcomes:

(i) deepened knowledge
(ii) positive emotions, excitement and enthusiasm
(iii) action towards greater complexity and more learning
(iv) adoption of further learning strategies
(v) development of higher order skills

4.2 Learning Experiences

Learning experiences can be brought through a number of ways such as classroom interactions, library, laboratory work, radio, television, films, field visits, and other similar situations Some of the other factors that influence the learning include home, peer groups, Community, Institutions, Society and Culture

The learner's environment is bounded by space and time constraints of the classroom and teaching. Effective learning environment should involve frequent and meaningful interaction among the learners, the instructional materials and between the learners and instructors Teachers can provide students with a diversity of problems in which they practice the application of newly learned skills and principles to varied life situations, for example situations that typically occur on-farms Collaboration, On-the-Job learning, and support are vital in effective learning

Student's involvement in learning can be ensured by providing them with hands-on activities and creating learning goals (Balasubramanian, 2001) Student's interests can be aroused and sustained by providing adequate infrastructure and equipment and ensuring regular teaching and practical The transfer of learning is improved when students learn broad concepts and principles, which are applicable in different situations, and not just facts. Good teachers give their students examples from different possible areas of application when they explain important generalizations Directions given by the teacher can enhance students' chances of being able to learn effectively

Chapter 3

Methodology

1. Sampling

A random sample of 30 schools from the 159 higher secondary schools/ junior colleges of Maharashtra offering Horticulture vocational course was taken, whilst all the 23 Intermediate colleges of Uttar Pradesh offering Nursery vocational course was taken for the study Population studied was the Principal, Teachers, and Students of institutions All Principals, teachers, and students of the schools were included in the study

2. Tools

Data collection was done through mailed questionnaires Questionnaires were sent to the respondents in the year 2000 Three questionnaires, one each for (a) Principal of the school, (b) Teachers, and (c) Students were developed by a group of experts. All the questionnaires had an Identification Information Blank for seeking information about the biodata of the respondents The questionnaire for the Principals was developed to collect the information regarding the availability of infrastructural facilities and instructional materials available and various other aspects related to vocational courses. The purpose of teacher's questionnaire was to gather information related to teaching facilities available and teaching strategies adopted. The students' questionnaire contained questions on various aspects related to teaching and teacher's competence The purpose of the questionnaire was to collect information about the implementation of teaching-learning system in Horticulture/Nursery vocational course and to seek teachers and students view on the curriculum transaction of the vocational course

3. Respondents

The present study was conducted on 16 schools of Maharashtra and 3 schools of Uttar Pradesh The respondents from the MCVC colleges of Maharashtra include 16 Principals, 15 Vocational Teachers, 9 Instructors, and 210 Vocational Students The respondents from the Intermediate colleges of U P. include 3 Principals, 4 Vocational Teachers, and 14 Vocational Students The breakdown of the respondents by district in Maharashtra and Uttar Pradesh is tabulated below As indicated in the tables, the study was confined to 9 districts of Maharashtra and 3 districts of U P.

(a) Maharashtra

S.No.	District	No. of School	No. of Principal	No. of Teachers/ Instructors	No. of Students
1	Jalgaon	2	1	1	20
			1	2	18
2.	Jalna	1	1	2	20
3.	Thane	1	1	2	14

4	Dhule	1	1	3	9
5	Yeotmal	5	1	2	9
			1	1	20
			1	1	12
			1	2	9
			1	1	4
6	Chandrapur	1	1	1	12
7	Wardha	3	1	1	9
			1	2	14
			1	1	6
8	Akola	1	1	1	14
9	Washim	1	1	1	20
	Total	**16**	**16**	**24**	**210**

(b) Uttar Pradesh

S.No.	**District**	**No. of Schools**	**No. of Principal**	**No. of Teachers**	**No.of Students**
1.	Maharajganj	1	1	2	05
2	Moradabad	1	1	1	05
3	Chitrakoot	1	1	1	04
	Total		**3**	**4**	**14**

4. Analysis

Data collected were analyzed in terms of percentages

5. Limitations of the Study

The study covers only two States i e Maharashtra and U.P and two vocational courses i e., Horticulture and Nursery. Insufficient sample of schools offering Nursery vocational course in Uttar Pradesh, was mainly due to poor response from the schools. In spite of the best effort greater response could not be achieved. In addition, out of the five schools, which responded to the questions, two of them have informed that the Nursery course is not being offered anymore, due to poor enrolment

RESULTS AND DISCUSSION

Chapter 4

Results and Discussion

1. School Characteristics

School characteristics, including location, management, etc that govern effectiveness of teaching and learning and ultimately affect student achievement.

(a) Location

From the data given in table 1.1, it is clear that out of 16 schools offering Horticulture vocational course, 14 (88%) are located in rural areas, while 1 each is in semi-urban and urban area. In Uttar Pradesh also (table 1.2), out of 3 schools, 2 (66%) are located in rural areas and 1 is located in semi-urban area. Thus, almost all the schools of Maharashtra and U.P are located in rural areas, which is advantageous for running horticulture/nursery courses, as facilities such as land, orchards, availability of part-time practitioner, etc will not be a constraint for running the vocational course. Therefore, this may not be considered as a factor, which might have affected the teaching-learning process in Horticulture or Nursery vocational course.

Table 1.1: Location of schools offering Horticulture vocational course in Maharashtra

N=16

S.No.	Location	No. of Schools	Percentage
1.	Rural	14	88
2	Semi-urban	1	6
3.	Urban	1	6

Table 1.2: Location of schools offering Nursery vocational course in Uttar Pradesh

N=3

S.No.	Location	No. of Schools	Percentage
1	Rural	2	66
2.	Semi-urban	1	34
3	Urban	0	0

(b) Management

Table 1 3 and 1 4 presents the type of management of schools in Maharashtra and U.P , respectively The present Institutional management structure is common to both vocational and general academic stream. Table 1.3 shows that out of 16 schools in Maharashtra, 15 were Government aided and only 1 was private school In Uttar Pradesh, all the 3 schools sampled for the study were Government-aided schools

Table 1.3: Type of management of schools offering Horticulture vocational course in Maharashtra

N=16

S.No.	Type of management	No. of schools	Percentage
1	Government	0	0
2.	Government-aided	15	93 8
3.	Private	1	6 2

Table 1.4: Type of management of schools offering Nursery vocational course in Uttar Pradesh

N=3

S.No.	Type of management	No. of schools	Percentage
1.	Government	0	0
2	Government-aided	3	100
3.	Private	0	0

Maharashtra is implementing the VEP by developing a separate management structure at various levels (see para 1.1 1) and has appointed DVETOs to coordinate with the State administration and monitor the implementation of VEP in Institutions In U P , however, there is a vocational education wing in the Directorate of Education (see para (1.2.1), which looks after the VEP. The posts sanctioned for the Additional District Inspector of Schools have not been filled As a result, there is lack of coordination between State, District and Institutional level agencies and the implementation of VEP is adversely affected

There is a growing perception that the private schools perform better than the Government or Government-aided private schools in terms of teaching quality, as the teachers in private schools are largely appointed on merit basis and they are also relatively more punctual and disciplined and work for longer hours to discharge their duties more effectively (Qamar and Zahid, 2002) In the present study, since most of the schools, both in Maharashtra and U P are Government-aided schools, therefore, this may not be considered as a factor directly affecting teaching-learning in agriculture based vocational course However, it does have an influence on the availability of funds and payment of salary of teachers, which affects the motivation of teachers and job satisfcation Akhtar and Rai (2002) noted that the grant under the CSS for running vocational courses is received with delay in U.P ,

which create hurdles in timely payment of honorarium to teachers, purchase of raw materials and arrangement of field visits

(c) Type of Schools

All the 16 schools studied in Maharashtra and 3 in U P. are co-educational schools. Thus, there is equal opportunity for the boys and girls to offer the Horticulture/Nursery vocational course

(d) Physical Resources

Table 1 5 and 1 6 shows the availability of physical resources in schools of Maharashtra and U P., respectively. An analysis of the data reveals that infrastructural facilities such as land, classroom, workshop, laboratory, equipment, water, electricity and library are available in all the schools of Maharashtra and U.P. However, it does not indicate that the resources are adequate and whether they are being utilized properly for running the course.

Table 1.5: Availability of physical resources for the Horticulture vocational course in Maharashtra

N=16

S.No.	Resource	No. of schools	Percentage
1	Land	16	100
2.	Classroom	16	100
3.	Workshop	10	62 5
4	Laboratory	16	100
5	Equipment	16	100
6	Water	16	100
7	Electricity	16	100
8.	Library	16	100

Table 1.6: Availability of physical resources for the Nursery vocational course in U.P.

N=3

S.No.	Resource	No. of schools	Precentage
1	Land	3	100
2	Classroom	3	100
3	Workshop	3	100
4	Laboratory	3	100
5	Equipment	3	100
6	Water	3	100
7	Electricity	3	100
8.	Library	3	100

(e) Staff

According to table 1 7 and 1 8, all the schools in Maharashtra and U P have teaching staff In Maharashtra, out of 16 schools, 11 (69 %) have employed supporting staff and 10 (63 %) have vocational counselors In U P , out of 3 schools, 2 (66.6%) have supporting staff and vocational counselor

Table 1.7: Availability of staff for Horticulture vocational course in schools of Maharashtra

N=16

S.No.	Staff	No. of schools	Percentage
1	Teaching Staff	16	100
2	Supporting Staff	11	69
3	Vocational Counsellor	10	63

Table 1.8: Availability of staff for Nursery vocational course in schools of U.P.

N=3

S.No.	Staff	No. of schools	Percentage
1.	Teaching Staff	3	100
2.	Supporting Staff	2	66 6
3	Vocational Counsellor	2	66 6

2. School Processes

(a) Qualification of Principal

The Head of the Institution and the teachers exerts a tremendous influence over the instructional practices, thus affecting the student achievement

Table 2.1 and 2 2 shows the educational qualification of the Principals of schools of Maharashtra and U P., respectively. Principals have the essential qualification for becoming Principal i.e., a post graduate degree in any subject and first degree in education i.e., B Ed

Table 2.1: Educational qualification of Principals of schools offering Horticulture vocational course in Maharashtra

N=16

S.No.	Qualification	No. of Principals	Percentage
1.	M Sc	1	6.3
2	M Sc Ag	1	6 3
3	M.A	4	25 0
	M.Com	1	6.3
	B A	5	31 1
4	B Sc.	4	25 0
5	B Ed	16	-

Table 2.2 : Educational qualification of Principals of schools offering Nursery vocational course in U.P.

N=3

S.No.	Qualification	No. of Principals	Percentage
1	M Sc	0	0
2.	M.Sc Ag	0	0
3	M A	3	100
	M Com	0	0
	B A	0	0
4.	B.Sc	0	0
5	B Ed.	3	0

In Maharashtra, except one, all other Principals do not possess any degree or professional qualification in agriculture for providing necessary guidance and leadership to the teachers for running the agriculture based vocational course In U P., none of the Principals had acquired professional qualification in agriculture or experience in vocational education

There are academic and economic reasons for introducing vocational education programme in the same school where general education is being given to students This is done to utilize the resources, both material and human, to economize initial and recurring investment by making use of the existing facilities The Head of the Institution is common for both general and vocational education streams. Tyagi (2002) noted that 70 per cent of the Principals of the Government Senior Secondary Schools are ineffective in managing their schools and they do not have any control and coordination over teachers in terms of effective teaching in general education It can be inferred that since most of the Principal's time is consumed for implementation of various aspects of general education, they may not able to devote sufficient time for vocational education.

(b) Criteria for Introduction of Vocational Course

It is clear from table 2 3 and 2.4 that whilst the introduction of Horticulture vocational course in majority of the schools (74.8 %) of Maharashtra was done on the basis of the employment opportunities existing in the area, introduction of Nursery vocational course in all the schools of U P was done on the directives of the State Government. This finding corroborate the observation made by Akhtar and Rai (2002) that District Vocational Survey in Uttar Pradesh was not conducted well in time for the identification of area-wise needs; and vocational courses were not allotted according to the demand of the schools and local or regional requirements

Table 2.3: Criteria used for selection of school for introduction of Horticulture vocational course in Maharashtra

N=16

S.No.	Criterion for Selection	No. of Schools	Percentage
1	District vocational survey	1	6 3
2	Demand of community	1	6 3
3	State Govt. Order	1	6 3
4	Availability of agricultural facilities	1	6 3
5	Availability of vocational teacher	0	0
6	Vocational opportunities existing in the area	12	74 8

Table 2.4: Criteria used for selection of school for introduction of Horticulture vocational course in U.P.

N=3

S.No.	Criterion for selection	No. of schools	Percentage
1	District vocational survey	0	0
2	Demand of community	0	0
3	State Govt Order	3	100
4	Availability of agricultural facilities	0	0
5	Availability of vocational teacher	0	0
6	Vocational opportunities existing in the area	0	0

3. Characteristics of Teachers

(a) Nature of Appointment

A perusal of the data given in table 3.1 and 3.2 shows that while all the vocational teachers and instructors in Maharashtra are employed on full-time basis with regular salary structure and promotion scheme, teachers in U P are hired on part-time basis

Table 3.1: Nature of appointment of vocational teachers in Horticulture vocational course in Maharashtra

N=24

S.No.	Employment Status	No. of Teachers/Instructors	Percentage
1	Full-time	24	100
2	Part-time	-	-

Table 3.2: Nature of appointment of vocational teachers in Nursery vocational course in U.P.

N=4

S.No.	Employment Status	No. of Teachers	Percentage
1	Full-time	-	-
2	Part-time	4	100

Mishra and Verma (1990) categorically stated that the negative impact of the absence of full-time teachers and instructors could be seen on the implementation of the VEP in the State This indicates that so far nothing has been done in U P either to regularize the existing teachers or for the appointment of full-time teachers, in spite of the recommendations made from time to time to the State Government According to the report of ORG submitted to the MHRD in 1996, Government of India, the reluctance shown by the State Governments towards appointment of full-time teaching staff in vocational courses is mainly due to the uncertainty of the continuation of the CSS on vocationalization of education.

(b) Sex

From table 3.3 and 3.4, it is evident that all the teachers teaching Horticulture vocational course in Maharashtra and Nursery vocational course in U.P are male. It indicates that teaching in agriculture-based courses is male dominated.

Table 3.3: Sex-wise distribution of vocational teachers in schools offering Horticulture vocational course in Maharashtra

N=24

S.No.	Sex	No. of Teachers/Instructors	Percentage
1	Male	24	100
2	Female	-	-

Table 3.4: Sex-wise distribution of vocational teachers in schools offering Nursery vocational course in U.P.

N=4

S.No.	Sex	No. of Teachers	Percentage
1	Male	4	100
2.	Female	-	-

(c) Age

As is evident from data contained in table 3.5 and 3 6 that the highest number of teachers and instructors i e., 13 (54 1%) belonged to the age group of 31-35 years in Maharashtra, whereas in U.P., out of 4 teachers, 2 belonged to the age group of 25-30 years. It implies that in general, the vocational teachers in both the States belong to the younger group

Table 3.5: Age-wise distribution of teachers/instructors teaching Horticulture vocational course in Maharashtra

N=24

S.No.	Age (range in years)	No. of Teachers / Instructors	Percentage
1	25-30	3	12 5
2.	31-35	13	54 1
3.	36-40	6	25 0
4.	41-45	1	4 2

5	46-50	1	4 2
6	51-55	0	0
7	56-60	0	0

Table 3.6: Age-wise distribution of teachers teaching Nursery vocational course in U.P.

N=4

S.No.	**Age (range in years)**	**No. of Teachers**	**Percentage**
1.	25-30	2	50 0
2.	31 35	0	0
3.	36-40	1	25
4	41-45	0	0
5.	46-50	0	0
6.	51-55	0	0
7	56-60	1	25

(d) Educational Qualification

Data contained in 3.7 shows that in Maharashtra, out of 15 teachers, 9 of them possessed the post graduate qualification with specialization in Horticulture, 3 of them possessed post graduate qualification with specialization in some other area related to Agriculture, 2 had done graduation with Horticulture and 1 was graduate in Agriculture All the nine Instructors appointed in Maharashtra possessed the desired qualification of graduation in Agriculture. As is evident from table 3.8, out of 4 teachers in U P., two of them do not have the post graduate qualification or specialization in Horticulture. Only 1 teacher possessed the prescribed qualification. Teachers with graduation in Agriculture, but without specialization in Horticulture are engaged on honorarium basis in schools of U.P , as a result they are not able to impart proper education and develop essential skills in students This finding support the observations made by Akhtar and Rai (2002)

Table 3.7: Educational qualification of teachers/instructors in schools offering Horticulture vocational course in Maharashtra

N=24

S.No.	**Professional Qualification**	**Specialisation**	**No. of teachers/ Instructors**	**Percentage**
1	M.Sc Ag	Horticulture	9	37 5
		Extension	1	4 2
		Entomology	1	4 2
		Agronomy	1	4 2
2.	B.Sc	Horticulture	2	8.3
3	B Sc Ag		10	41 6
4.	B Ed.		3	-
5.	M.Ed		1	-

Table 3.8: Educational qualification of teachers of schools offering Nursery vocational course in U.P.

N=4

S.No.	Professional Qualification	Specialisation	No. of teachers	Percentage
1	M Sc.Ag	Horticulture	1	25
		Extension	1	25
		Entomology	0	0
2.	B.Sc	Horticulture	0	0
3	B Sc Ag		2	50
4.	B Ed.		1	-
6	M Ed		0	0

(e) Experience

As is evident from table 3 9, a majority of teachers and instructors (54 2 %) in Maharashtra are having teaching experience ranging from 6-10 years. The data contained in table 3 10 shows that a majority of 66 7 % of vocational teachers in U.P is having teaching experience from 1-5 years This may be attributed to the fact that in U.P experts from any field are appointed on part-time basis and they may not have been in teaching profession earlier. It was noted that none of the teachers in Maharashtra and U P. are members of any academic society.

Table 3.9: Teaching experience of vocational teachers/instructors teaching Horticulture vocational course in Maharashtra

N=24

Teaching Experience (range in years)	No. of Teachers/ Instructors	Percentage
1-5	9	37 5
6-10	13	54 2
11-15	2	8 3

Table 3.10: Teaching experience of vocational teachers teaching nursery vocational course in U.P.

N=3

Teaching Experience (range in years)	No. of Teachers	Percentage
1-5	2	66.7
6-10	1	33.3
11-15	0	0

(f) Training

Table 3.11 and 3 12 shows the data related to the in-service teachers training programme (ITTP) attended by teachers in Maharashtra and U.P., respectively. It is clear from the data that while 67 % teachers attended the ITTP in Maharshtra, only 25 % teachers got the opportunity to attend the ITTP. Table 3 13 and 3.14 shows that duration of the ITTP attended by the teachers of Maharashtra and U P It is evident that 80 %

of the teachers in Maharashtra attended ITTP ranging from 26-35 days On the other hand in U P., the teacher attended the training of 10 days

Table 3.11: In-service training programme attended by vocational teachers of Horticulture vocational course in Maharashtra

N=15

S.No.	In-service training programme	No.of teachers	Percentage
1.	Attended	10	67
2.	Not-attended	5	33

Table 3.12: In-service training programme attended by vocational teachers of Nursery vocational course in U.P.

N=4

S.No.	In-service training programme	No. of teachers	Percentage
1	Attended	1	25
2	Not-attended	3	75

Table 3.13: Duration of in-service training programme attended by vocational teachers of Horticulture vocational course in Maharashtra

N=10

S.No.	Duration of training (days)	No. of teachers	Percentage
1	6-10	0	0
2.	11-15	0	0
3.	16-20	0	0
4.	20-25	1	10
5.	26-35	8	80
6.	36-45	1	10

Table 3.14: Duration of in-service training programme attended by vocational teachers of Nursery vocational course in U.P.

N=1

S.No.	Duration (days)	No.of teachers	Percentage
1	6-10	1	100
2	11-15	0	0
3.	16-20	0	0
4.	20-25	0	0
5	26-35	0	0
6	36-45	0	0

Table 3.15 and 3 16 presents the views of vocational teachers about the utility of ITTP 60% teachers of Maharashtra felt that the ITTP attended by them was 'very useful', while 40% were of the opinion that the programme was 'useful'. The teacher from U.P found the ITTP to be very useful.

Table 3.15: Views of vocational teachers of Maharashtra about the utility of in-service training programme

N=10

S.No.	Utility of training	No. of teachers	Percentage
1.	Very useful	6	60
2	Useful	4	40
3.	Not useful	0	0

Table 3.16: Views of vocational teachers of U. P. about the utility of in-service training programme

N=1

S.No.	Utility of training	No. of teachers	Percentage
1	Very useful	1	100
2.	Useful	0	0
3	Not useful	0	0

Table 3 17 and 3 18 contains the data pertaining to the in-service training programme attended by the Instructors in Maharashtra. The data for in-service training of instructors in U.P. is not available as there are no full-time or part- time instructors. It is clear from the data that out of 9 full-time instructors, 4 (44%) had attended the training programme. Out of 4 instructors, 3 attended training of 36-35 days duration, whereas I attended training of 22-25 days duration.

Table 3.17: In-service training programme attended by Instructors of Horticulture vocational course in Maharashtra

N=9

S.No.	In-service training programme	No. of Instructors	Percentage
1.	Attended	4	44
2	Not-attended	5	56

Table 3.18: Duration of in-service training programme attended by Instructors of Horticulture vocational course in Maharashtra

N=4

S.No.	Duration of training (days)	No. of teachers	Percentage
1.	15-20	0	0
2.	20-25	1	25
3	26-35	3	75
4.	36-45	0	0

According to NCTE (1998), teacher's selection and training, competence, motivation and the conditions of work impinge directly on teacher's performance. The vocational teachers and instructors in U P do not possess the stipulated qualifications, and many of them lack

professional field experience, which is very essential for effective curriculum transaction. Providing vocational teachers with opportunities to improve their vocational and teaching skills and abilities may ameliorate self-esteem and expertise.

Mishra and Verma (1990) conducted an evaluation study of the vocationalisation of education in Intermediate schools of U P They noted that out of 27 popular vocational courses in the State, part time teachers of only 9 vocational courses have been given training of 10 days duration by the Intermediate Board of Education and State Commissionerate of Public Instruction. A majority of the vocational teachers did not receive any training The report suggested that teacher-training programmes of at least 3 weeks or one month should be organized for the vocational teachers. They visited 4 schools offering nursery vocational course, with an enrolment of 84 students, which were only boys

4. Instructional Time

(a)Languages

It is clear from table 4 1 and 4.2 that the time devoted to teaching of languages varied from school to school in Maharashtra, whereas it was same in U.P A perusal of data shows that a majority of schools i.e ,6 (37.5 %) are devoting 6 hrs per week for teaching of languages i.e. English and Marathi, whereas 100 % schools in U P are devoting only 4 hrs per week to teaching of languages i e , English and Hindi.

Table 4.1: Time allocation for 'Languages' in schools offering Horticulture vocational course in Maharashtra

N=16

Hours/week	No. of Schools	Percentage
6	6	37 5
7	3	18 7
8	1	6 3
9	2	12.5
10	4	25 0

Table 4.2: Time allocation for 'Languages' in schools offering Nursery vocational course in U.P.

N=4

Hours/week	No. of Schools	Percentage
4	4	100

(b) General Foundation Course

Table 4 3 shows that out of 16 schools, a majority of them i e 8 (50 %) are devoting 5 hrs per week to teaching of GFC. 7 schools (43 7 %) are devoting 4 hrs and 1 school is devoting 6.0 hrs per week to teaching of GFC Table 4 4 shows that 100% schools in U.P are devoting 4 1-4 5 hrs per week to teaching of GFC. It can be inferred that teaching of both

Languages and General Foundation Course in U.P is receiving less time as compared to a majority of the schools in Maharashtra.

Table 4.3: Time allocation for 'General Foundation Course' in schools offering Horticulture vocational course in Maharashtra

N=16

Hours/week	No. of Schools	Percentage
4	7	43 7
5	8	50 0
6	1	6 3

Table 4.4: Time allocation for 'General Foundation Course' in schools offering Nursery vocational course in U.P.

N=3

Hours/ week	No. of Schools	Percentage
4	3	100
5	0	0
6	0	0

(c) Vocational Theory

Table 4.5 and 4.6 shows the time given to teaching of vocational theory in schools of Maharashtra and U.P A majority of the schools i.e , 8 (50%) in Maharashtra are providing theoretical instruction for 12 hrs in a week, while 100 % schools studied in U P are providing theoretical instruction for just 7 hrs per week

It is clear from the data that the time devoted in U.P. is almost 40 % less than that being allocated in Maharashtra for teaching vocational theory. Lack of uniformity in the allocation of time for instruction could be seen in the +2 Institutions of Maharashtra. This could be one of the factors responsible for the variation in academic achievement noted among the schools of Maharashtra.

Table 4.5: Time allocation for Vocational theory in schools offering Horticulture vocational course of Maharashtra

N=16

Hours/week	No. of Schools	Percentage
7	1	6 3
8	3	18.7
9	4	25 0
10	0	0
11	0	0
12	8	50 0

Table 4.6: Time allocation to Vocational theory in schools offering Nursery vocational course in U.P.

N=3

Hours/week	No. of Schools	Percentage
7 0	3	100

(d) Vocational Practice

The data in table 4 7 and 4 8 reveal that out of 16 schools in Maharshtra, 8 (50%) is devoting 20 hrs per week, 7 (43 7%) is devoting 25 hrs per week and 1 (6 3%) is devoting 15 hrs week for conducting practical training of students In U P , out of 3 schools, 2 (66 7%) are organizing practical training for students for 12 hrs per week and 1 (33.3%) is conducting practical training for 10 hrs per week Thus, it can be inferred that the schools in Maharashtra are devoting at least 8-10 hrs per week more time on practical training of students than the schools of U.P Like any other academic subject, teaching in vocational course is also done for about 40 to 45 minutes for theory and 2-3 hours for practical lessons Vocational courses, however, require a different time allocation and timetable, as the instructional strategies need to be integrated and much more time than what is available should be allocated at a stretch to provide effective instruction and learning experiences to the learner.

Table 4.7: Time allocation for Vocational practice in Horticulture vocational course in schools of Maharashtra

N=16

Hours/week	No. of Schools	Percentage
15	1	6 3
20	8	50 0
25	7	43.7

Table 4.8: Time allocation for Vocational practice in Nursery vocational course in schools of U.P.

N=3

Hours/week	No. of Schools	Percentage
8 0-9 0	0	0
9 1 -10	1	33 3
10 1-11	0	0
11 1-12	2	66.7

(e) On-the-Job Training

As could be seen from table 4 9, out of 16 schools in Maharashtra, 4 (25%) devote 1 hr/yr, 3 (18 6 %) devote 2 hrs/yr, 2 (12 5%) allocate 120 hrs/yr and 1 (6 3%) each devote 4,12 and 48 hrs/yr. However, 4 schools (25%) did not organize OJT Table 4 10 shows the time allocated by the schools of U P for organizing OJT It is clear that out of 3 schools, none of them is organizing OJT.

The collaborative model of vocational education recognizes that learning outside the school is equally important as learning in school On-the-job training being an important component of vocational course has been given less time in both the States in general In U P , it has been totally neglected, as a result the quality of training has been adversely affected Absence of full-time teachers or instructors is one of the major factors responsible for this neglect. The situation in Maharashtra is also not very encouraging as very less time is being devoted to OJT, mainly because of lack of linkages with training Institutions or Nursery owner In addition, there is no separate fund available for bearing the expenses of transportation of students to the OJT sites

Table 4.9: Time allocation to On-the-job training in schools offering Horticulture vocational course in Maharashtra

N=16

Time (hours) per year	No. of Schools	Percentage
0	4	25
1	4	25
2	3	18 6
3	0	0
4	1	6 3
12	1	6 3
48	1	6 3
120	2	12 5

Table 4.10:Time allocation to On-the-job training in schools offering Nursery vocational course in U.P.

N=3

Time (hours) per year	No. of Schools	Percentage
0	3	100
1	0	0
2	0	0
3	0	0
4	0	0
12	0	0
48	0	0
120	0	0

5. Instructional Material

The effectiveness of teaching also depends on teachers' familiarity with the curriculum and availability of instructional materials

(a)Availability of textbooks

Teacher's response to the availability and adequacy of the instructional material is given in table 5 1 and 5 2. In Maharashtra, all 16 teachers (100%), representing their schools, mentioned that textbooks and reference books are adequate, whereas in U P only 33 3% teachers mentioned that textbooks, practical manual and reference books are adequate As regard the availability of practical manual in Maharashtra, 63 % teachers mentioned that they are adequate, 18 5 % expressed the inadequacy of the manual and another 18 5% mentioned that these are not available About 63 % teachers from both Maharashtra and U P reported that the Teachers guide for both the courses are available.

Table 5.1: Views of vocational teachers on the availability of instructional materials in schools offering Horticulture vocational course in Maharashtra

N=16

S.No.	Instructional material	Adequate		Inadequate		Not available	
		No	%	No	%	No	%
1	Text-books	16	100	0	0	0	0
2	Practical manual	10	63 0	3	18 5	3	18 5
3.	Reference books	16	100	0	0	0	0
4	Teachers guide	10	63.0	4	25	2	12 0

Table 5.2: Views of vocational teachers about the availability of instructional materials in schools offering Nursery vocational course in U.P.

N=3

S.No.	Instructional material	Adequate		Inadequate		Not available	
		No	%	No.	%	No	%
1	Text-books	1	33.3	0	0	2	66 7
2	Practical manual	1	33 3	0	0	2	66 7
3.	Reference books	1	33 3	1	33 3	0	0
4.	Teachers guide	2	66.7	0	0	1	33 3

(b) Publisher of Textbooks

Table 5 3 and 5 4 shows the publisher of Vocational textbooks used by the teachers for teaching vocational course. It is clear from the data contained in table 9.3 and 9.4 that whilst 25 % schools in Maharashtra are using textbooks published by NCERT, none of the schools in U P is utilizing NCERT textbooks The data further suggest that 68 7% schools

in Maharashtra and 66 6% schools in U.P are using textbooks published by the respective State Textbook Corporation in regional language

The textbooks developed by State Textbook Corporation of Maharashtra and Uttar Pradesh are according to the prescribed syllabus for the vocational courses, but deals with the subject in a very general way, without adequate emphasis on the application of the basic scientific principles to the tasks to be performed

Table 5.3: Source of text-books in Maharshtra for Horticulture vocational course

N=16

S.No.	Publisher	No. of Schools	Percentage
1	NCERT	4	25 0
2	State Text-book Corporation	11	68 7
3.	Private	9	56 3

Table 5.4: Source of text-books in U.P. for Nursery vocational course

N=3

S.No.	Publisher	No. of Schools	Percentage
1	NCERT	-	-
2	State Text-book Corporation	2	66 6
3	Private	1	33 3

6. Teaching Methods

As is evident from table 6.1 and 6 2, lecture method was the primary and most preferred method of teaching Horticulture/Nursery vocational course in schools of Maharashtra and Uttar Pradesh It is evident that whilst 100% schools in Maharashtra conducted practical training, only 50 % teachers of U.P adopted practical training as a teaching methodology Group discussion and demonstration was seldom used. A majority of the vocational teachers provide theoretical instructions, which implies inadequate preparation of the students for the market and often rote learning of the basic principles involved in functioning of tools and machines and their parts There ought to be exploration of the real work situations, intensive practical training and experimentation to educate and train the students for performing skills to certain prescribed standards.

It is clear from the data that the classroom instruction in vocational education is characterized by conventional teaching and learning method and is content or lecture-oriented, with major emphasis on the use of blackboard writing and notes taking The classroom based vocational education may [illegible] unattractive to many learners, as they are tied to negative experie[illegible]s from their schooling days and the instructions fail to be [illegible] to the 'real world'

Table 6.1: Teaching methodologies adopted by vocational teachers teaching Horticulture vocational course in Maharashtra

N=24

S.No.	Method	No. of teachers	Percentage of total
1	Lecture	24	100
2	Discussion	09	37 5
3	Practical	24	100
4	Demonstration	05	20 8

Table 6.2: Teaching methodologies adopted by vocational teachers teaching Nursery vocational course in U.P.

N=4

S.No.	Method	No. of teachers	Percentage
1	Lecture	4	100
2	Discussion	1	25
3	Practical	2	50
4	Demonstration	1	25

Teaching strategies in vocational courses should be directed towards developing logical memory A holistic approach that connects all aspects of learning and training is needed When students have to find a solution to a problem by themselves or with only partial guidance, the transfer of learning can be expected to be better than when students learn passively by listening to a lecture or even observing a demonstration by the teacher

The challenge is to find a form of delivery system that is a mix of both the classroom and real work place learning experiences. Resource-based learning, wherever existing, is mainly confined to the use of text-books, practical manuals and other printed materials. During the transaction of the vocational curriculum, a continuous integration of knowledge and skills should take place Hitz *et al* (2001) noted that the students taught through the project-based method of instruction, as compared to the traditional classroom method of instruction, had a greater level of retention as indicated by the post test taken three weeks after the last unit of instruction Library-oriented assignments, field-based project work, computer-aided instructions are some of the approaches, which should be widely introduced in VET institutions to provide interactive and goal-oriented learning

The teaching of agriculture, even at the degree level, is lecture oriented Pandey and Dalal (2002) studied the eight commonly used teaching methods viz , lecture, lecture notes, library assignments, board display, demonstrations, group discussion, project work and faculty seminar at Chaudhary Charan Singh Haryana Agricultural University, Hisar The respondents were 100 undergraduates and 100 postgraduates from Agriculture and Veterinary Colleges. The study concluded that teachers always used lecture method as perceived by 81 % respondents Lecture notes was the second preferred method used by teachers Demonstration was sometimes used as teaching method, as

indicated by 8 per cent respondents Group discussion, project work and faculty seminar were never used as teaching methods

Thus, a good vocational education can be imparted by blending both theory and practice, with deeper understanding of application of concepts and theories to real work situations Theory is needed just to give a broader meaning to the basic training, so that the foundation needed for transfer of learning and skills from one situation to another can be made possible

7. Job Satisfaction of Teachers

Teachers view was sought to know whether they are satisfied with the teaching of agriculture based vocational courses in their school A perusal of table 7 1 and 7 2 shows that in Maharashtra, out of 24 teachers/instructors, 20 (83 3%) were satisfied with the teaching, whereas 4 (16.7%) felt otherwise. In U P out of 4 teachers, 2 (50%) were unsatisfied with the teaching of agriculture based vocational courses in their school. Teachers view were sought to know whether they are satisfied with the students' competencies in Horticulture related activities

Table 7.1: Views of Teachers/Instructors about the teaching of agriculture-based vocational course in schools of Maharashtra

N=24

S.No.	Views	No. of Teachers/Instructors	Percentage
1	Satisfied	20	83 3
2	Not-satisfied	04	16 7

Table 7.2: Views of Teachers about the teaching of agriculture-based vocational course in schools of U.P.

N=4

S.No.	Views	No. of Teachers	Percentage
1	Satisfied	2	50
2	Not-satisfied	2	50

Table 7 3 and 7 4 shows that in Maharashtra, out of 24 teachers/instructors, 16 (66 6%) were satisfied with the competence developed in their students, whereas 8 (33 3%) felt that the students do not possess the required competence In U P , out of 3 teachers, 2 (75%) were satisfied with the competence developed in their students to perform various skills related to practices in nursery and 1 (25%) felt otherwise Heller *et al* (1992) concluded that teachers were motivated by achieving success in the classroom Mertler (1992) noted that satisfied teachers are more productive, motivate their students more, and increase students' achievement

Table 7.3: **Views of Teachers about the competence of students of Horticulture vocational course in Maharashtra**

N=24

S.No	Views	No. of Teachers	Percentage
1	Satisfied	16	66 6
2	Not-satisfied	08	33 3

Table 7.4: **Views of Teachers about the competence of students of Nursery vocational course in U.P.**

N=4

S.No.	Views	No. of Teachers	Percentage
1	Satisfied	3	75
2	Not-satisfied	1	25

Thomas and Burnett (1997) conducted a study to determine the relationship between job satisfaction and performance of vocational agriculture teachers. Teachers were found to be moderately satisfied with their jobs and tended to be relatively more satisfied with intrinsic factors than extrinsic ones Certain job satisfaction factors were related to performance ratings on knowledge of subject matter, teaching skills, and involvement in the total program

Heller *et al.* (1993) discovered that nearly 50% of the public school teachers sampled in the study were not satisfied with their jobs. They also noted that job satisfaction was not significantly related to school type, years of experience or gender Castillo and Cano (1999) reported that teacher's demographic characteristics (age, years in current position, total years of teaching, degree status and tenure status) were not significantly related to the overall level of job satisfaction.

8. Students Enrolment

Table 8.1 and 8.2 shows the enrolment of vocational students in Class XI and XII in the year 2000 in schools of Maharashtra and U P, respectively The data reveals that in Class XI there was, on an average, enrolment of 6 students per school in Maharashtra, whereas in U P it was just 4 students per school during 1998-99 Similarly in Class XII, the average enrolment in Maharashtra was 7 students per school, whereas in U P, it was only 1 student per school during 1998-99

The data reveals a poor enrolment of students in the Nursery vocational course in U P It can be inferred that the demand of the course is poor may be due to ineffective teaching-learning or due to the lack of availability of employment opportunities in the area The poor training facilities in and outside the school form the basis of the first assumption The second assumption is supported by the fact that the course was introduced in the schools by the State Government Order and not on the basis of the employment opportunities existing in the area

Table 8.1: Class-wise enrolment of students in Horticulture vocational course offered in schools of Maharashtra

N=210

Class	No. of students	Percentage
XI	96	45 7
XII	114	54 3

Table 8.2: Class-wise enrolment of students in Nursery vocational course offered in schools of U.P.

N=14

Class	No. of students	Percentage
XI	11	78 6
XII	03	21 4

9. Characteristics of Students

Student's motivation for learning may be influenced by a variety of external and internal factors such as their age, the relevance of the course, the clarity of their career ambitions, family expectations and the pressures of assessments

(a) Sex

Table 9.1 and 9.2 shows sex-wise distribution of students A perusal of data shows that the Horticulture/Nursery vocational course is male dominated in both Maharashtra and U P. Desai and Whiteside (2000) also noted that in Gujarat, Home Science is female dominated, while the Agriculture and technical course are male dominated Commerce is the only vocational course with almost equal distribution of both male and female students.

Table 9.1: Sex-wise distribution of students in schools of Maharashtra offering Horticulture vocational course

N=210

Sex	No. of students	Percentage
Male	185	88 0
Female	25	12 0

Table 9.2: Sex-wise distribution of students in schools of U.P. offering Nursery vocational course

N=14

Sex	No. of students	Percentage
Male	13	92 8
Female	01	7 2

(b) Age

Age-wise distribution of vocational students in Maharashtra and U P is given in table 9 3 and 9.4, respectively A perusal of the data shows that in Maharashtra, out of 210 students, 118 (56%) belonged to the age cohort of 20-22 years, 80 (38%) belonged to the age cohort of 17-19 years and 12 (6%) belonged to the age group of 23-25 years In U P , all 14 students (100%) belonged to the age group of 17-19 years This implies that the flexibility in terms of age, provided by the Maharashtra Government for admission to the vocational courses has indeed enhanced the enrolment of students, as a pass out of higher secondary academic stream can also join vocational course Even a graduate from academic stream, who feel the need for joining vocational course for developing skills can also join the higher secondary vocational course

Table 9.3: Age-wise distribution of students in schools of Maharashtra offering Horticulture vocational course

N=210

Age (range in years)	No. of students	Percentage
17-19	80	38
20-22	118	56
23-25	12	06

Table 9.4: Age-wise distribution of students in schools of U.P offering Nursery vocational course

N=14

Age (range in years)	No. of students	Percentage
17-19	14	100
20-22	0	0
23-25	0	0

(c) Caste

Table 9.5 and 9.6 shows the category-wise distribution of vocational students A perusal of the data shows that in Maharashtra, out of 210 students, a majority i.e , 127 (60.4%) were from OBC, 36 (17.2%) from General caste, 28 (13.4%) from SCs and 19 (9%) from ST In U P , out of 14 students, a majority i.e., 6 (42 9%) were from General caste, 5 (35.7%) belonged to the OBC and 3 (21.4%) were from SCs None of the students belonged to the ST

Table 9.5: Category of students in schools of Maharashtra offering Horticulture vocational course

N=210

Category	No. of students	Percentage
General caste	36	17 2
Scheduled caste	28	13 4
Scheduled tribe	19	9 0
Other backward class	127	60 4

Table 9.6: Category of students in schools of U.P. offering Nursery vocational course

N=14

Category	No. of students	Percentage
General caste	6	42 9
Scheduled caste	3	21 4
Scheduled tribe	0	0
Other backward class	5	35 7

(d) Scholastic Achievement

The data presented in table 9 7 and 9 8 shows the scholastic achievement in Class X of students enrolled in Class XI and XII during the year 1999-2000 in Horticulture/Nursery vocational course A perusal of the data reveals that a majority of the students, both in Maharashtra and Uttar Pradesh, scored marks ranging from 41 to 55 per cent. Whilst in Maharashtra, 8.9% students scored more than 60 marks i e first division, in Uttar Pradesh 7 1 per cent student had obtained first division. It implies that students with low academic achievement in general education usually prefers to opt for agriculture vocational courses The study corroborate the findings of Desai and Whiteside (2000) who studied the status of vocational secondary education in Gujarat and concluded that Commerce and Technical courses (40 and 48%, respectively) attract more students with First Class secondary school certificates than Home Science (27 %) and Agriculture (26%)

Table 9.7: Marks obtained in Class X by students enrolled in Horticulture vocational course in schools of Maharashtra

N=203

Marks (range in %)	No. of Students	Percentage
30 35	13	6 4
36-40	23	11 3
41-45	58	28 6
46-50	65	32 0
51-55	26	12 8
56-60	14	6 9
61-65	03	1 5
66-70	01	0 5

Table 9.8: Marks obtained in Class X by students enrolled in Nursery vocational course in schools of U.P.

N=14

Marks (range in %)	No. of Students	Percentage
30-35	0	0
36-40	1	7 1
41-45	4	28 6
46-50	4	28 6
51-55	4	28 6
56-60	1	7 1

10. Reasons for Joining Vocational Course

Table 10.1 and 10.2 presents the response of students to reasons for joining vocational course. The data reveals that in Maharashtra, out of 210 students, a majority i.e., 119 (56.6%) opted for the course, as it was suggested by the teacher, which indicates that the teachers played an important role in guiding students for taking admission in vocational courses. In U.P., out of 14 students, 9 (64.3%) took admission in vocational course because of their own interest

Table 10.1: Response of students to reason(s) for joining Horticulture vocational course in Maharashtra

N=210

S.No.	Reason	No. of students	Percentage
1	Suggested by Counsellor	25	11.9
2	Suggested by Teacher	119	56.6
3	Suggested by Principal	44	20.9
4	Suggested by Friends	34	16.2
5	Suggested by Parents	10	4.8
6	Own interest	35	16.7
7	Influenced by mass media	70	33.3
8	Not interested in academic studies	41	19.5
9	Did not get admission elsewhere	12	5.7
10	To get an early job	83	39.5
11.	Better prospects for self employment	138	65.7
12.	Inadequate financial support from the family	34	16.2
13.	Any other reason	18	8.6

Table 10.2: Response of students to reason(s) for joining Nursery vocational course in U.P.

N=14

S.No.	Reason	No. of students	Percentage
1.	Suggested by Counsellor	0	0
2	Suggested by Teacher	5	35.7
3	Suggested by Principal	0	0
4.	Suggested by Friends	0	0
5.	Suggested by Parents	0	0
6.	Own interest	9	64.3
7.	Influenced by mass media	5	35.7
8	Not interested in academic studies	5	35.7
9.	Did not get admission elsewhere	0	0
10	To get an early job	2	14.3
11	Better prospects for self employment	9	64.3
12	Inadequate financial support from family	4	28.6
13	Any other reason	0	0

It is interesting to note that most of the students in Maharashtra and U P (more than 60%) were aware of the benefits of the vocational education and therefore, took admission as it has better prospects of self employment A comparatively lower percentage of students in U P (35 7%) than in Maharashtra (56.6%) were influenced by the teachers for taking admission in vocational course This is mainly because of the fact that there are full time teachers and instructors for vocational courses in Maharashtra and they get sufficient time to interact with the students for motivating them to take admission in vocational courses. On the contrary, the vocational teachers in U P are employed on part-time basis and therefore, there commitment is limited to teaching, as they are paid on the per lecture basis As revealed from the data given in table 10 2, Principals in U P. did not play any role in suggesting students to take up vocational courses. In addition, there is no provision of the vocational counselor in schools of U.P , as is indicated by the response of the students, whereas in Maharashtra a significant percentage of students (11 9%) were guided by the vocational counselor to opt for vocational courses Interestingly in Maharashtra, 16 2% students were encouraged by their friends and 4.8% by their parents to take up vocational course, which reflects upon the popularity of the course and its effective implementation in the State The data from the present study corroborate the findings of Dhote (1991) that a majority of the students opting for vocational courses had in mind that they would get an early job or they can go for self-employment after completion of the course.

As indicated in table 10.1 and 10 2, the mass media has also played a role in popularization of vocational courses and influencing students. A significant percentage of students in Maharasthra (19 5) and Uttar Pradesh (35.7) have mentioned that they were not interested in academic studies and therefore, opted for vocational course. Out of 210 students, 83 (39.5%) in Maharashtra and out of 14 students, 2 (14 3%) in Uttar Pradesh mentioned that they opted for vocational course to get an early job. One of the reasons for such aspiration could be the inadequate financial support from the family, as can be seen from the data given table 10.1 & 10.2 Desai and Whiteside (2000) noted that the high achieving poorer vocational students, driven by the economic necessity, coming from under-privileged backgrounds with fewer private resources are the most likely to enter the world of work at the end of their vocational schooling.

11. Evaluation of Teachers' Competencies by Students

Assessment of teachers' competence by the students is being increasingly used for systematic evaluation of classroom teaching. Student ratings of teachers have been shown to be stable and internally consistent and to differ for different teachers Students' response to the content and communication communication competencies was sought to assess the teaching performance. Disposition of teachers towards their students was also assessed through the students' response.

(a) Content Competencies

Table 11 1 to 11 2 provides the data of the students' assessment of the content competencies possessed by their teachers/instructors A perusal of the data shows that more than 70% of the students in Maharashtra and Uttar Pradesh were of the opinion that the vocational teachers possessed a very good knowledge and skills related to the subject Rest of the students was of the view that the teachers possessed good knowledge and skills. None of the students in both the States opined that the teacher possessed poor content competencies

Table 11.1: Opinion of students about the content competencies possessed by the teachers teaching Horticulture vocational course in Maharashtra

N=212

S.No.		No. of students	Percentage
1	Very Good	159	75 0
2.	Good	50	23 6
3	Fair	0	0
4	Poor	0	0
5	No response	03	1 4

Table 11.2: Opinion of students about the content competencies possessed by teachers teaching Nursery vocational course in U.P.

N=14

S.No.		No. of students	Percentage
1	Very Good	10	71 4
2.	Good	04	28 6
3	Fair	0	0
4.	Poor	0	0
5	No response	0	0

(b) Communication Competencies

Table 11.3 and 11.4 contains the data of the students' assessment of the communication competencies possessed by the vocational teachers As is evident from table 11.3, 60.4% students of Horticulture vocational course in Maharashtra are of the view that the teachers possessed very good communication competencies, whereas only 36 8% rated teachers as having good communication skills. In Uttar Pradesh, however, a majority of the students (64 3%) were of the view that the teachers possessed good communication skills, while only 35.7% rated teachers as having very good communication skills. It can be inferred from the findings that the teachers teaching horticulture vocational course in Maharashtra possess better communication skills than the vocational teachers teaching Nursery vocational course in Uttar Pradesh. None of the students in both the States opined that the teacher possessed poor communication competencies

Table 11.3: Opinion of students about the communication competencies possessed by the teachers teaching Horticulture vocational course in Maharashtra

N=212

S No.		No. of students	Percentage
1	Very Good	128	60.4
2	Good	78	36.8
3	Fair	0	0
4	Poor	0	0
5	No response	06	2.8

Table 11.4: Opinion of students about the communication competencies possessed by the teachers teaching Nursery vocational course in U.P.

N=14

S.No.		No. of students	Percentage
1	Very Good	5	35.7
2	Good	09	64.3
3	Fair	0	0
4	Poor	0	0
5.	No response	0	0

(c) Teachers' Attitude

It is evident from the data contained in table 11.5 and 11.6 that the majority of the vocational teachers, both in Maharashtra and Uttar Pradesh have a positive attitude towards their students.

Table 11.5: Opinion of students about the attitude of teachers in schools of Horticulture vocational course in schools of Maharashtra

N=212

Attitude	No. of students	Percentage
Positive	208	98
Negative	0	0
Uneven	0	0
Can't say	2	1
No response	2	1

Table 11.6: Opinion of students about the attitude of teachers in schools of Nursery vocational course in schools of U.P.

N=14

Attitude	No. of students	Percentage
Positive	14	100
Negative	0	0
Uneven	0	0
Can't say	0	0
No response	0	0

12. Students' views about Practical Training

(a) Nature of practical work

The data in table 12 1 and 12.2 provides information about the practical training A perusal of the data shows that out of 16 schools in Maharashtra, a majority of them i e , 15 (93.8%) are organizing On-the-Job training and visits to agricultural farm for imparting practical training. In Uttar Pradesh, however, out of 03 schools, only 01 school (33.3%) is organizing OJT and field visit to agricultural farm

Table 12.1: Nature of work undertaken for providing practical training in Horticulture in Maharashtra

N=16

S.No.	Activity	No. of schools	Percentage of total
1.	On-the-job training	15	93.8
2	Lab work	14	87 5
3	Activities related to PTC	11	68 8
4.	Visit to agricultural farm	15	93 8
5.	Interaction with progressive farmers/entrepreneurs	13	81.3
6.	Participation in career exhibition	10	62 3

Table 12.2: Nature of work undertaken for providing practical training in Nursery in U.P.

N=3

S.No.	Activity	No. of schools	Percentage of total
1	On-the-job training	1	33 3
2.	Lab work	1	33 3
3	Activities related to PTC	1	33 3
4.	Visit to agricultural farm	2	66 6
5	Interaction with progressive farmers/entrepreneurs	1	33 3
6	Participation in exhibition-cum-career meet	0	0

(b) Quality of Practical Training

Lack of adequate practical training through various activities in schools of Uttar Pradesh is a major reason for the inadequate development of required skills in students and popularization of the vocational courses This presumption is substantiated by the fact that out of 14 students in Uttar Pradesh, 09 preferred not to respond to the question that "whether they are receiving good practical training" (table 12 4) The suggestions made by most of the teachers in Uttar Pradesh that a nursery should be established in school for providing practical training to the students is also indicative of the fact that the students

are not receiving adequate practical training In Maharshtra, however, a majority of the students i e 157 (74 8%) are of the view that the quality of the practical training provided to them is good

Table 12.3: Opinion of students about the quality of practical training received in Horticulture vocational course in schools of Maharashtra

N=210

Received Good Practical Training	No. of students	Percentage
Yes	157	74 8
No	05	2 4
Not responded	48	22 8

Table 12.4: Opinion of students about the quality of practical training imparted in schools of Nursery vocational course in schools of U.P.

N=14

Received Good Practical Training	No. of students	Percentage
Yes	5	35 7
No	0	0
Not responded	9	64 3

On-the-job training enables pupil to employ their academic understanding and abilities in a variety of out-of-school context to solve complex problems and develop higher-level competencies. There were not enough support by the Intermediate colleges in U P in terms of providing on-the-job training, visit to agricultural farm and interaction with progressive farmers as compared to the institutions in Maharashtra. Lack of support of local agencies, agricultural farms and industries for field trips and tours have been a major constraint in providing hands on practice to the students. As can be seen from the table, vocational students of Nursery vocational course in U.P. are not getting opportunity of participating in the exhibition-cum-career meet, whereas more than 60% of the students in Maharashtra have participated in the exhibition-cum-career meet. This is mainly because the teachers in U.P are appointed on part-time basis and ensuring participation of the students in exhibitions would require planning, preparations and coordination for organizing exhibition-cum-career meet and taking students to the exhibition. Schools should prepare students for participation in on-the-job training, skills for continued learning and higher order cognitive abilities so that they can apply their skills to real life situations, which include the world of work.

13. Academic Achievement

The academic achievement of vocational students in Class XI and XII was studied from the data

(a) Class XI

Performance of vocational students in Class XI enrolled in Horticulture and Nursery vocational course in Maharashtra and U P for the academic session 1999-2000 is given in Table 13.1 and 13 2, respectively. In Maharashtra, a majority of the students (80 2%) scored marks ranging from 41-60 per cent, whereas in Uttar Pradesh, 100 per cent students scored marks ranging from 61-70% The examination system in vocational education programme needs to be questioned- its function, competencies being tested, skill testing procedures adopted, certification, etc. needs to be studied and suitably modified. Further research is needed to investigate the impact of the teachers/instructors on the student's achievement through a well-planned and widely administered study.

Table 13.1: Academic achievement in Class XI of students enrolled in Horticulture vocational course in schools of Maharashtra

N=96

Marks (range in %)	No.of Students	Percentage
30-35	0	0
36-40	8	8 3
41-45	14	14 6
46-50	16	16 7
51-55	22	22.9
56-60	25	26 0
61-65	6	6 3
66-70	3	3 2
71-75	2	2 0

Table 13.2: Academic achievement in Class XI of students enrolled in Nursery vocational course in schools of U.P.

N=5

Marks (range in %)	No.of Students	Percentage
30-55	0	0
56-60	0	0
61-65	1	33 3
66-70	2	66.7
71-75	0	0

(b) Class XII

A perusal of table 13 3 and 13 4 shows the average number of students who appeared and pass percentage of students in Class XII board examination, since 1994-95 in both the States On comparison of the percentage passout during 1994-99, the data reveals that whilst in Maharashtra, the passout percentage has remained constant through successive years. In Uttar Pradesh however, it has decreased sharply Interestingly in the year 1998-99, the average number of students, who appeared in the Class XII board examination is 17 in both the States, but the passout percentage in Maharashtra was 52 9%, whereas in Uttar Pradesh it was only 33 3%. This reflects on the poor instruction and learning in Uttar Pradesh Further research is warranted to critically analyse the factors, which have influenced the results and identify the variable affecting the academic achievement of vocational students

Table 13.3: Percentage of students passed in Class XII exam in Horticulture vocational courses in schools of Maharashtra

Year	Average No.of students/school appeared in exam*	Percentage of passout*
1994-95	26	48 2
1995-96	23	43 3
1996-97	26	33 8
1997-98	19	46 5
1998-99	17	52 9

* Average of 15 schools

Table 13.4: Percentage of students passed in Class XII exam in Nursery vocational courses offered in schools of U.P.

Year	Average No.of students/school appeared in exam*	Percentage of passout*
1994-95	23	95 6
1995-96	14	51 8
1996-97	16	51 6
1997-98	28	49 1
1998-99	17	33 3

* Average of 3 schools

Gregorc (1979) described a person's learning style as consisting of distinct behaviours, which serve as indicators of how a person learns and adapts to his/her learning environment. Learning styles have been found to have a positive relationship with academic performance, as measured by grade point average (Tores and Cano, 1994) and performance in agricultural courses (Gardon *et al* , 1999) Research findings have been mixed as to the predictive potential of grade point average (GPA). Some researchers (see Daniels, 1993, Riggs and Riggs,

1992) found GPA to be a good predictor of students' performance and classroom teaching performance.

The poor performance of students in examination can be explained by a number of factors, including poorer school infrastructure and facilities, poorly trained and less experienced teachers and lower expectations on the part of the teachers and parents The implication of the study for policy makers is to find obvious ways for improving the quality of vocational education offered in rural schools.

14. Suggestions by Principals and Teachers

The Principals and Vocational Teachers made the following suggestions for bringing about improvement in the teaching-learning process in schools

MAHARASHTRA

Principal

1. The Government should provide more grants for organizing practical and fieldwork.
2. There should be a provision of Agriculture Assistant for organizing farm activities.
3. State Government should provide adequate publicity to the course.
4. Students should be provided opportunity for Apprenticeship Training.
5. Opportunity for higher learning in the vocation should be provided to the students

Teachers

1. Curriculum should include more practical than theory.
2. Grant should be provided for establishing Production-cum-Training Centre.
3. Syllabus should be revised to suit the requirements for self-employment
4. Semesterisation of vocational courses should be done to provide flexibility in offering of course
5. Adequate quantity of water for horticulture related activities should be available throughout the year
6. Students should be provided opportunity for Apprenticeship Training.

UTTAR PRADESH

Principal

1 Students who secure III division should be compulsorily diverted to vocational stream.
2. Instructional material for Nursery vocational course should be made available
3 The State Government should provide facility for organizing exhibition

Teachers

1 Plant nursery should be established in schools for providing practical training to students
2. Instructional material for Nursery Vocational Course is not available
3 Enough time for teaching vocational courses is not available, as lot of time is spent on teaching the other subject i e. agriculture, and in organizing other activities of school
4. Semester system should be adopted for ensuring continuous participation of the students and effective implementation of agriculture vocational course
5 Monthly magazines/journals on Horticulture should be made available in library.

CONCLUSIONS AND RECOMMENDATIONS

Chapter 5

Conclusions and Recommendations

The study presents a comparative account of the various input and contextual factors, which has affected the teaching-learning process in Horticulture and Nursery vocational course in Maharashtra and Uttar Pradesh, respectively The study suggests that implementation of VEP in Maharashtra is somewhat better. There are various reasons behind the successful implementation of VEP in Maharashtra. Some of these reasons are discussed below.

1. A separate management structure at various levels to coordinate and monitor the implementation of VEP.
2 Introduction of vocational courses is based on the vocational opportunities in the area.
3. Vocational teachers and instructors have been appointed on regular basis and possess the stipulated qualification, though some of them lack professional field experience.
4 In-service training of majority of teachers and instructors
5. Teachers possess good content and communication competencies.
6 Sufficient time has been allocated for teaching languages, General foundation Course and vocational theory and practical vis-à-vis the recommendations of the national guidelines
7 Organization of on-the-job training, though sufficient time has not been allocated, and field visits to the agricultural farms is being done by a majority of the schools.
8. The examination results of vocational students are reasonably good
9. Enrolment of students in Horticulture vocational course is reasonably good, though it is decreasing over the years.

In Uttar Pradesh, there are major constraints and limitations, which has adversely affected the teaching-learning process in the State Some of these are broadly discussed below:

1. Only a separate vocational wing has been created in the Directorate of Education to coordinate and monitor the implementation of VEP at the State level, which has no effective support of the Officers at the district level, as the additional posts sanctioned for the District Inspector of Schools have not been filled
2. Introduction of vocational courses is not based on the vocational opportunities in the area, as a result the students enrolment and training is adversely affected.
3. Vocational teachers have not been appointed on regular basis and most of them lack professional field experience.
4. There is no provision of instructors or Agriculture Assistants for imparting practical training.

5. Sufficient time has not been allocated for teaching languages, General foundation Course and vocational theory and practical vis-à-vis the recommendations of the national guidelines
6. Organization of on-the-job training is not being done and only few schools are involved in activities for providing practical training outside the school, such as visits to farm, etc
7. The examination results are not very encouraging and enrolment of vocational students is sharply decreasing over the years

Some generalizations can be made from the findings of the present study Firstly, it can be seen that the vocational education has been looked upon as a way of making secondary education more accessible to students from low socio-economic background or those who could not fair well in academic stream, but intend to pursue higher education Secondly, the limited training delivered through vocational education program produces equally limited skills (basic competencies) and does not much change students' aspirations for higher education and white-collar employment. The "basic competencies" developed during the training provide little help to the youths in establishing their own enterprise-a task that is difficult enough even for experienced adults. Thirdly, teaching and learning in vocational courses is teacher-centered, instead of learner-centered The learning process is focused on simply telling pupil what they should know or by demonstrating them what they ought to do. This is being done due to the lack of infrastructural facilities for each student or due to the lack of competence of the teachers to impart necessary skills. The classroom instruction is characterized by conventional teaching and learning method and is content or lecture-oriented, with major emphasis on the use of blackboard writing and notes taking The classroom based vocational education may be unattractive to many learners, as they are tied to negative experiences from their schooling days and the instructions fail to be relevant to the 'real world'. As a result, active participation of learners in the learning process is lacking The challenge is to find a form of delivery system that is a mix of both the classroom and real work place learning experiences. Fourthly, resource-based learning, wherever existing, is mainly confined to the use of text-books, practical manuals and other printed materials such as reference books Library-oriented assignments, project work, computer-aided instructions are some of the approaches, which should be widely introduced in VET institutions to provide interactive and goal-oriented learning.

At the national level, exemplar instructional materials for Horticulture vocational course have been developed by the PSSCIVE It is suggested that the vocational teachers should possess a copy of the instructional materials, both textbooks and practical manuals, developed by the PSSCIVE for bringing about qualitative improvement in teaching. The vocational teachers should also utilize instructional video-films developed by the PSSCIVE in areas like Mushroom Cultivation and Vermicompost Preparation for supplementing teaching with audio-visual aids and providing a variety of learning experience to the students

EDUCATIONAL IMPLICATIONS

Chapter 6

Educational Implications

The findings of the present study could be utilized for designing appropriate interventions in the teaching-learning process. Some of the implications of the findings are discussed, which can be utilized to formulate suitable strategies for providing interventions in teaching and learning

(a) Training of Teachers

The in-service training programmes for the teachers should be of at least 15 days duration Besides intensive subject-specific training, pedagogical content knowledge should also be given during the training. The teaching methodology during the training should be mix of lecture, demonstration, project assignment, seminar, group discussion, etc., with major emphasis on hands on practice of various subject-specific activities The training programmes should also include activities, such as Yoga, meditation, physical exercises, which prepare teachers in stress management and build a more positive attitude Providing vocational teachers with opportunities to upgrade their technical and teaching skills and abilities will help in keeping up their morale high, which would ultimately be useful in enhancing student achievement and increasing student enrolment rate. Role preparedness should be the focus of all teacher-training programmes.

(b) Institutional Training Plan

Institutions should develop a training plan, which sets out the training goals, considers how teachers/trainers will contribute to achieving the plan and specifies how learning and training outcomes will be met.

(c) Curriculum Transaction

Curriculum transaction should take place both in school and industry (enterprise/orchards/farm/botanical gardens). Provision of block time instruction would provide an opportunity to combine various methods of instruction for effective teaching-learning. Learners are to be given work to be done individually or in small groups. It will helps them consolidate their learning, learn to communicate, and achieve the time target The course of study should be organized in such a way that even the holidays of the students can be utilized in introducing practical orientation of the students There should not be pre-scheduled recesses in the programmes. Recesses should be according to the nature of work or as and when the teacher/trainer feel the need of relaxation. The competency should be augmented through on-the-job training and project work in a real life situation under the guidance of an expert practitioner.

(d) Teaching Methodology

One major inference that can be drawn from the findings of the study is that the teaching methodology in agriculture based vocational courses is lecture-oriented and teacher centered. It has to be an appropriate mix of lecture

method, practical training, assignments, projects, and experimentation, with major emphasis on the hands-on training Training to the students should be provided by the progressive farmers/horticulturists and entrepreneurs and the teachers must work closely with them for ensuring transfer of skills from the trainers to the students. Availability of farm tools, equipment and machinery and other materials should be ensured to provide necessary training support

Lessons from the Story of Gandhiji's Experiences at Tolstoy Farm

As the Farm grew, it was found necessary to make some provision for the education of its boys and girls There were among these Hindu, Musalman, Parsi and Christian boys and some Hindu girls. It was not possible to arrange for qualified Indian teachers, as they were scarce and even when available, none would be ready to go to a place 21 miles distant from Johannesburg on a small salary Also, we were certainly not overflowing with money and I did no think it necessary to import teachers from outside the Farm I did not believe in the existing system of education and I had a mind to find out by experience and experiment the true system But I had always given the first place to the culture of the heart or the building of character and as I felt confident that moral training could be given to all alike, no matter how different their ages or upbringing I decided to live amongst them all the 24 hours of the day as their father

There were no servants on the Farm and all the work from cooking down to scavenging was done by the inmates. There were many fruit trees to be looked after and enough gardening to be done as well. Mr Kallenbach was fond of gardening and had gained some experience of this work in one of the Governmental model garden. It was obligatory on all, young and old, who were not engaged in the kitchen to give some time to gardening The children had the lion's share of this work, which included digging pits, felling timber and lifting loads. This gave them ample exercise Whenever, I was strict, I would by argument convince them that it was not right to play with one's work On Tolstoy Farm, we made it a rule that the youngsters should not be asked to do what the teachers did not do and therefore, when they were asked to do any work, there was always a teacher cooperating and actually working with them

I do not even remember having made much use of the books that were available. I did not find it at all necessary to load the boys with quantities of books I have always felt that the true textbook for the pupil is his teacher I remember very little that my teachers taught me from books, but I have even now a clear recollection of the things they taught me independently of books

Children take in much more and with less labour through their ears than through their eyes. I do not remember having read any book from cover to cover with my boys, but I gave them in my own language all that I had digested from my reading of various books and I dare say they are still carrying a recollection of it in their minds It was laborious for them to remember what they learnt from books, but what I imparted to them by the word of mouth, they could repeat with the greatest ease Reading was a task for them, but listening to me was a pleasure, when I did not bored them by failure to make my subject interesting From the questions, that my talks prompted them to put, I had a measure of their power of understanding.

(Excerpts from the book " An Autobiography or The Story of my Experiments with Truth" by M.K Gandhi. Ahmedabad Navajivan Trust)

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Annexure- I

List of MCVC Higher Secondary Schools/Junior Colleges of Maharashtra offering Horticulture vocational course

1	Junior College (M.C V.C) PAL, Tal. Raver, Dist Jalgaon-425 508	Ph 88424
2	Shamrao Shivram Patil Vidyamandir and Higher Secondary School, Chahardi, Tal - Chopda, Dist. Jalgaon	Ph 34105
3	Chhatrapati Shivaji Jr College, Ankushnagar, Jalna- 431 205	Ph 30159
4.	Vidyamandir High School & Jr. College Shivale, Tal Murbad Thane	Ph ·40061
5.	S.V S Rawal Daulatsinghji Multipurpose Junior College Dondaicha, Tal -Shindkheda Dhule-425 408	Ph 44325/44512
6	Shikshan Vikas Mandal (MCVC) Jr College, Dabha, Tal Babhulgaon Distt Yavatmal- 445 101	Ph.·5703
7	Shri Shivaji Jr College Sawana Tal Mahagoan Yavatmal-442 505	
8	Mungsaji Maharaj Mahavidyalaya (MCVC) Darwha Yavatmal- 445 202	Ph 54245
9	Shri Gurudev Vidyamandir Jr College (MCVC), Jawal, Tal Arni, Dist Yavatmal-445 105	Ph 61022
10.	Shri Tejmal Gandhi Jr Science College (MCVC) Bramhangaon, Tal - Umarkhed, Dist Yavatmal-445 209	Ph 42423

11	Shri Shivaji Mahavidyalaya Rajura, Chandrapur-442 905	Ph 22215
12.	Vikas Jr College, (MCVC) Samundrapur Tal Samundrapur Dist - Wardha-432 305	Ph 25457
13	Model Jr. Vocational Mahavidyalaya Arvi, Post Arvi, Tal Arvi, Dist.- Wardha-442 201	Ph 22213
14	Junior Mahavidyalaya (MCVC) Kora, Post- kora Tal- Samundrapur Dist - Wardha-442 305	Ph 34423
15.	Tulsabai Kavale Secondary and Higher Secondary School, Patur, Dist - Akola- 444 501	Ph 43226
16.	Dhanokar Adarsh Kanisht Mahavidyalaya Dhanora, Tal Mangrulpari, Dist Washim-444 009	Ph 363 065

Annexure- II

List of Intermediate Colleges of Uttar Pradesh offering Nursery Vocational Course

1. Lal Bahadur Shastri Inter College,
Mathura Nagar,
Anand nagar,
Maharajganj

2 Sita Saran Inter College,
Khatauli,
Muzafarnagar,

3 Ratannath Inter College Ph : 54113
Rasin
Dist Chitrakoot

Annexure – III
प्राचार्य
Principal

पं. सुंदरलाल शर्मा केन्द्रीय व्यावसायिक शिक्षा संस्थान
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131 Zone II, M.P. Nagar, Bhopal - 462011

प्राचार्य के लिए प्रश्नावली
QUESTIONNAIRE FOR PRINCIPAL OF SCHOOL

प्रोजेक्ट शीर्षक कृषि आधारित व्यावसायिक शिक्षा के अध्यापन–अध्ययन की स्थिति व प्रभाव का तुलनात्मक अध्ययन (एरिक एन सी ई आर टी नई दिल्ली द्वारा प्रवर्तित)

Project-Title Comparative study of the status and effectiveness of vocational teaching-learning in agriculture

(Sponsored by ERIC NCERT New Delhi)

नोट – कृपया निम्न जानकारी दे एव आवश्यकतानुसार उपयुक्त उत्तरो पर सही (√) का चिन्ह लगाए ।

NOTE - Kindly provide the following information related to Agriculture based Vocational Courses only Wherever required put a tick mark on the applicable answer(s)

1 सामान्य जानकारी
1 GENERAL INFORMATION

1.1 शैक्षिक संस्थान/विद्यालय का नाम एव पता।
1.1 Name and address of Eduational Institution/School

नाम
Name ______________________________

पता
Address ______________________________
____

जिला/जनपद ______ पिन कोड ______ राज्य ______
District Pin Code State

दूरभाष क्रमांक ______________ फैक्स ______________
Telephone Fax

1.2 संस्थान/विद्यालय का प्रबंधन
Management of School/Institution

(i) शासकीय ☐ (ii) अर्द्ध शासकीय ☐
Government Semi-Government

(iii) निर्जी ☐ (iv) शासकीय अनुदान प्राप्त ☐
Private Government aided

(v) कोई अन्य (कृपया स्पष्ट करे) ☐ ☐
Any other (please specify)

____

____

13 विद्यालय का क्षेत्र
Location of Shool/Institution

(i) ग्रामीण ☐ (ii) कस्बा ☐
Rural Semi-urban

(iii) शहरी ☐ (iv) महानगरीय ☐
Urban Metropolitan

14 विद्यालय के प्राचार्य/संस्था प्रमुख का नाम
Head/Principal of School/Institution

141 नाम ____
Name

142 पदनाम ____
Designation

143 आयु ____________________ वर्ष 144 लिंग (i) पुरुष ☐
Age Sex Male

(ii) स्त्री ☐
Female

145 शैक्षणिक योग्यताए ____
Qualifications

146 तकनीकी/व्यावसायिक योग्यता ____
Technical/Vocational

147 अध्यापन अनुभव ____(पूर्व वर्षो मे)
Teaching Experience

148 प्रशासनिक अनुभव ____(पूर्व वर्षो मे)
Academic Experience

15 विद्यालय का प्रकार
Type of School/Institution

(i) केवल छात्र ☐
Boys

(ii) केवल छात्राए ☐
Girls

(iii) सह शिक्षा ☐
Co-education

1.6 कृपया अपने विद्यालय में संचालित कृषि आधारित व्यावसायिक पाठ्यक्रम (ट्रेड्स) के नाम बताएँ।
Kindly list the vocational courses/trades running in your school/institution

(i) ______________________________
(ii) ______________________________
(iii) ______________________________
(iv) ______________________________

2. कृषि व्यावसायिक पाठ्यक्रम से संबंधित विशिष्ट जानकारी

2. SPECIFIC INFORMATION REGARDING AGRICULTURE BASED VOCATIONAL COURSES

2.1 आपके विद्यालय में कृषि व्यावसायिक पाठ्यक्रम किस आधार पर चल रहा है?
What is the basis of selection of agriculture based vocational course(s) for your school?

(i) जिला व्यावसायिक सर्वेक्षण के आधार पर
On the basis of District Vocational Survey ☐

(ii) समुदाय की मांग के अनुसार
On the demand of Community ☐

(iii) सरकार के आदेशानुसार
By State Government Order ☐

(iv) विद्यालय में कृषि संबंधित सुविधाओं की उपलब्धता के कारण
On the basis of Agricultural Facilities ☐

(v) अध्यापक की उपलब्धता के कारण
Availability of Vocational Teacher(s) ☐

(vi) व्यवसाय की रोजगार संभावनाओं को देखते हुए
In view of Employment/Vocattional Opportunities ☐

(vii) अन्य (कृपया स्पष्ट करें)
Any other (please specify) ☐

____

____

2.2 आपके विद्यालय में अकादमिक और व्यावसायिक वर्ग में कितने शिक्षक है?
How many vocational and academic teachers are there in your school/institutions?

अकादमिक वर्ग Academic stream	व्यावसायिक वर्ग Vocational stream	कुल Total

इनमे से केवल कृषि व्यावसायिक पाठ्यक्रम मे शिक्षण कार्य करने वाले शिक्षक कितने है? कृपया स्पष्ट करे
Out of total teachers how many teachers are involved in teaching agriculture based vocational teachers?

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____

____

2.3 कृषि व्यावसायिक शिक्षण कार्य के लिए आपके यहाँ कैसी व्यवस्था है?
What category of teachers are involved in teaching agriculture based vocational courses?

	शिक्षक वर्ग Category of Teachers		सख्या Number
(i)	अंश कालिक व्यावसायिक शिक्षक Part-time teacher	☐	( )
(ii)	पूर्ण कालिक व्यावसायिक शिक्षक Full-time vocational teacher	☐	( )
(iii)	अकादमिक शिक्षक द्वारा शिक्षण Academic teacher	☐	( )
(iv)	अतिथि व्याख्याता/स्रोत व्यक्ति/विशेषज्ञ Guest Lecturer/Resource Person/Experts	☐	( )

2.4 कृषि व्यावसायिक पाठयक्रम के शिक्षक की न्यूनतम निर्धारित योग्यता क्या है?
What is the prescribed minimum qualification for appointing vocational teacher for agriculture based vocational courses?

S No.	व्यावसायिक पाठ्यक्रम Vocational Course	शिक्षक वर्ग Category of teacher	न्यूनतम योग्यता Minimum Qualification	शैक्षणिक अनुभव Teaching Experience	व्यावसायिक अनुभव Vocational Experience
1		पूर्ण–कालिक Full-time			
2					
3					
1		अश–कालिक Part time			
2					
3					

2.5 आपके विद्यालय मे वर्तमान मे कार्यरत शिक्षकों की योग्यता एव अनुभव का विवरण दीजिये।
Describe the qualification and experiences of agriculture vocational teacher of your school?

शिक्षक वर्ग Category of Teacher	शिक्षक का नाम Name of Teacher	शैक्षिक योग्यता Educational Qualification	व्यावसायिक/ तकनीकी योग्यता Vocational/ Technical Qualification	अनुभव (व्यावसायिक पाठ्यक्रम) Experience in teaching vocational course
पूर्ण- कालिक	1			
Full-time	2			
	3			
अंश–कालिक	1			
Part-time	2			
	3			

2.6 आपके विद्यालय मे शिक्षक कृषि व्यावसायिक पाठ्यक्रम के शिक्षण कार्य के लिए कौन–कौन सी शिक्षण विधिया अपनाते है?
Which of the following methods of teaching are being used by vocational teachers of agriculture based vocational courses?

(i) व्याख्याता (लेक्चर) विधि
Lecture method ☐

(ii) विचार–विमर्श के माध्यम से
Discussion method ☐

(iii) प्रायोगिक गतिविधिया/अभ्यास के माध्यम स
Practical/ [illegible] method ☐

(iv) प्रदर्शन विधि
Demonstration method ☐

(v) कोई अन्य (कृपया स्पष्ट करे)
Any other (Please specify) ☐

____

____

2.7 आप के विद्यालय मे कृषि व्यावसायिक पाठ्यक्रम के लिए पाठ्य सामग्री की उपलब्धता किस प्रकार की है?
What type of study materials are available in your school for agriculture based vocational courses?

	पर्याप्त Sufficient	अपर्याप्त Insufficient	उपलब्ध नही Not available
(i) पाठ्य–पुस्तक Text-book	☐	☐	☐
(ii) प्रायोगिक पुस्तिका (मैनुअल) Practical Manual	☐	☐	☐

(iii) गाइड/नोट्स
Guide/Notes ☐ ☐ ☐

(iv) संदर्भ-पुस्तक
Reference books ☐ ☐ ☐

(v) अन्य कोई (कृपया स्पष्ट करें)
Any other (Please specify) ☐ ☐ ☐

____

2.8 आपके विद्यालय में कक्षा 10वीं में सामान्य अकादमिक विद्यार्थियों का नामांकन विभिन्न अकादमिक वर्षों में कितना रहा है?
What was the enrolment of general academic students of 10th class during different academic years?

अकादमिक वर्ष Academic Year	कक्षा X में नामांकन Enrolment in Xth Class		
	छात्र Boys	छात्राएँ Girls	कुल Total
(i) 1995–96			
(ii) 1996–97			
(iii) 1997–98			
(iv) 1998–99			

2.9 आपके विद्यालय में अतिथि व्याख्याता/स्रोत व्यक्ति की विशेषज्ञता पाठ्यक्रम के अनुसार किन क्षेत्रों में होती है?
What is the specialization of guest lecturer/resource person according to the vocational course in your school?

क्रमांक Sl.No.	पाठ्यक्रम का नाम Name of the Course	विशेषज्ञता Specialization
1		
2		
3		

2.10 क्या आपने किसी व्यावसायिक शिक्षण कार्य की ट्रेनिंग (प्रशिक्षण) प्राप्त की है?
Have you received training in any area of vocational teaching?

(i) हाँ
Yes ☐

(ii) नहीं
No ☐

यदि हाँ तो कृपया स्पष्ट उल्लेख करे
If yes please specify

क्रमांक S No	कार्यक्रम/कोर्स/ विषय का नाम Name of the training course	अवधि एव वर्ष Duration and year	आयोजक संस्था Organizing Institution	स्थान Place

2.11 आपके विद्यालय मे उपयोग की जाने वाली कृषि व्यावसायिक पाठ्यक्रम की पाठ्य-सामग्री का प्रकाशन स्रोत क्या है?
What are the publication sources of agriculture vocational text-books used in your school?

(i) एन सी ई आर टी
NCERT ☐

(ii) एस सी ई आर टी
SCERT ☐

(iii) राज्य पाठ्य-पुस्तक निगम
State Text-Books Corporation ☐

(iv) निजी प्रकाशक
Private Publishers ☐

(v) कोई अन्य (कृपया स्पष्ट करे)
Any other (Please specify) ☐

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2.12 आपके विद्यालय मे कृषि व्यावसायिक अध्यापक सामान्यता दैनिक पठन-पाठन मे किस प्रकार की पाठ्य सामग्री उपयोग करते है?
What types of reading materials/books are generally used in daily teaching by agriculture vocational teachers of your school?

(i) प्रकाशित पाठ्य-पुस्तक
Published Text-books ☐

(ii) अध्यापक द्वारा निर्मित सामग्री (नोटस)
Teacher-made materials (notes) ☐

(iii) सदर्भ-ग्रथो के द्वारा
Reference Books ☐

(iv) बाजार मे उपलब्ध गाईड के द्वारा
Study guides available in local market ☐

(v) कोई अन्य (कृपया स्पष्ट करे)
Any other (please specify) ☐

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2.13 विद्यालय मे अतिथि व्याख्याता या स्रोत व्यक्ति को आमंत्रित करते समय किन–किन बातो का ध्यान रखते है?
What are the major considerations while inviting Guest Lecturer/Resource Persons to your school?

(i) विषय–विशेष मे योग्यता
Qualified Subject Teacher ☐

(ii) परिचित / उपलब्ध व्यक्ति
Personally known/available persons ☐

(iii) सबधित कार्य क्षेत्र मे कुशलता
Persons skilled in concerned field ☐

(iv) व्यावसायिक क्षेत्रो से सबधित व्यक्ति
Persons related with business/enterprise ☐

(v) अन्य (कृपया स्पष्ट करे)
Any other (please specify) ☐

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2.14 कृषि व्यावसायिक शिक्षण कार्य के लिए निम्न मे से कौन–कौन सी सुविधाए आपके विद्यालय मे उपलबध है?
Which of the following facilities are available in your school for agriculture vocational teaching

क्र S No.	सुविधाए Facilities	उपलब्ध Available	उपलब्ध नही Not available
(i)	उपकरण Equipments	हाँ ☐	नही ☐
(ii)	प्रयोगशाला Laboratory	हाँ ☐	नही ☐
(iii)	कार्यशाला Workshop	हाँ ☐	नही ☐
(iv)	भूमि Land	हाँ ☐	नही ☐
(v)	जीव–जतु (यदि जीव–जतु पर आधारित पाठ्यक्रम हो) Animals (for animal based vocational course)	हाँ ☐	नही ☐
(vi)	पानी Water	हाँ ☐	नही ☐
(vii)	बिजली Electricity	हाँ ☐	नही ☐

(viii) शिक्षक गण हाँ ☐ नही ☐
Teaching Staff

(ix) सहायक स्टाफ हाँ ☐ नही ☐
Supporting Staff

(x) पुस्तकालय हाँ ☐ नही ☐
Library

(xi) पर्याप्त कक्षाए हाँ ☐ नही ☐
Adequate Class-rooms

(xii) व्यावसायिक निर्देशन एव परामर्शदाता हाँ ☐ नही ☐
Vocational Counsellor

2.15 क्या आपके पास परीक्षा मडल द्वारा बनाए गये कृषि व्यावसायिक पाठ्यक्रम की प्रतिलिपी उपलब्ध है?
Do you have a copy of curriculum of agriculture based vocational course prescribed by State Board of Examination?

(i) हाँ Yes ☐ (ii) नही No ☐

यदि नही तो विद्यालय/शिक्षक को कृषि व्यावसायिक पाठ्यक्रम के बारे मे कैसे जानकारी होती है?
If no then how teachers get the information regarding curriculum of agriculture based vocational courses

____

____

2.16 क्या राज्य माध्यमिक शिक्षा परिषद द्वारा कृषि व्यावसायिक विषय हेतु परीक्षा सचालित की जाती है?
Is the State Secondary Education Examination Board conducting the examination for Agriculture based vocational courses?

(i) हाँ Yes ☐ (ii) नही No ☐

यदि हाँ तो कृपया कृषि व्यावसायिक विषय के लिए न्यूनतम उत्तीर्णांक —% दर्शाकर निम्न जानकारी दे।
If yes then what is the minimum passing marks — ——% for a vocational course Please provide the following information

वर्ष Year	12वी बोर्ड परीक्षा मे सम्मिलित कृषि व्याव विद्यार्थियो की सख्या Total No. of agriculture vocational students appeared in 12th Board Exam	उत्तीर्ण विद्यार्थियो की सख्या Total No of students passed in agriculture based vocational courses	कृषि व्या विषय मे न्यूनतम उत्तीर्णांक प्राप्त नही होने के कारण अनुत्तीर्ण विद्यार्थियो की संख्या No of students failed in in agriculture vocational course
1994–95			
1995–96			
1996–97			
1997–98			
1998–99			

2.17 आपके विचार से विद्यालय मे कौन–कौन से कृषि व्यावसायिक पाठ्यक्रम वर्तमान समय मे अनुपयोगी है?
In the present context which agriculture based vocational courses running in your school is/are irrelevant?

(i) ______________________________

(ii) ______________________________

(iii) ______________________________

2.18 आपके विचार से ऐसे कौन से अन्य कृषि व्यावसायिक पाठ्यक्रम है जो वर्तमान समय मे अधिक उपयोगी हो सकते है?
In your view which agriculture based vocational course are most relevant in the present context?

(i) ______________________________

(ii) ______________________________

(iii) ______________________________

2.19 कृषि व्यावसायिक पाठ्यक्रम के क्रियान्वयन को अधिक सुचारु रूप से चलाने के लिए आपके क्या सुझाव है?
Do you have any suggestion for proper implementation of agricultural based vocational courses?

(i) ______________________________

(ii) ______________________________

(iii) ______________________________

सपर्क पता

डॉ वी.एस मेहरोत्रा
प्रमुख अनुसधानकर्त्ता,
कृषि प्रभाग
प सुन्दरलाल शर्मा केन्द्रीय व्यावसायिक शिक्षा सस्थान
131 जान–II, एम पी नगर, भोपाल– 462 011
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131 Zone II M P Nagar, Bhopal-462 011
Tel 0755-558160
Fax 0755 - 558128
E mail psscive@mp nic in

Annexure – IV
शिक्षक
Teacher

पं. सुंदरलाल शर्मा केन्द्रीय व्यावसायिक शिक्षा संस्थान

PSS CENTRAL INSTITUTE OF VOCATIONAL EDUCATION

131, जोन–II, महाराणा प्रताप नगर, भोपाल–462011

131 Zone II, M P Nagar, Bhopal - 462011

व्यावसायिक शिक्षक के लिए प्रश्नावली

QUESTIONNAIRE FOR VOCATIONAL TEACHER OF SCHOOL

प्रोजेक्ट शीर्षक कृषि आधारित व्यावसायिक शिक्षा के अध्यापन–अध्ययन की स्थिति व प्रभाव का तुलनात्मक अध्ययन (एरिक, एन सी ई आर टी, नई दिल्ली द्वारा प्रवर्तित)

Project-Title . Comparative study of the status and effectiveness of vocational teaching-learning in agriculture

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नोट – कृपया निम्न जानकारी दें एवं आवश्यकतानुसार उपयुक्त उत्तरों पर सही (√) का चिन्ह लगाएं।

NOTE - Kindly provide the following information related to Agriculture based Vocational Courses only Wherever required put a tick mark on the applicable answer(s)

1 सामान्य जानकारी

1 GENERAL INFORMATION

1.1 संस्थान/विद्यालय का नाम एवं पता

1.1 Name and address of Educational Institution/School

नाम ____

Name

पता ____

Address

जिला/जनपद________________ पिनकोड ____________ राज्य ______________

District Pin Code State

फोन ____________________ फैक्स ______________________

Telephone Fax

1.2 कृषि व्यावसायिक पाठ्यक्रम पढ़ाने वाले शिक्षक का परिचय

Introduction of teacher teaching agriculture based vocational course

1 2 1 नाम ____
Name

1 2 2 आयु ____________________वर्ष
Age Year

1 2 3 लिग Sex
(a) पुरुष Male ☐
(b) स्त्री Female ☐

1 2 4 योग्यताए
Qualifications

1 2 4 1 शैक्षणिक ____
Educational

1 2 4 2 व्यावसायिक ____
Vocational

1 2 5 अनुभव
Experiences

1 2 5 1 अकादमिक क्षेत्र मे ____
In academic field

1 2 5 2 व्यावसायिक क्षेत्र मे ____
In vocational feild

1 3 आप कृषि व्यावसायिक विषय का शिक्षण कार्य किस रूप मे करते है–
Are you teaching agriculture based vocational subject as a -

(i) पूर्णकालिक व्यावसायिक शिक्षक
Full-time vocational teacher ☐

(ii) अशकालिक व्यावसायिक शिक्षक
Part-time vocational teacher ☐

(iii) अकादमिक शिक्षक
Academic teacher ☐

(iv) अतिथि व्याख्याता/स्रोत व्यक्ति
Guest Lecturer/Resource Person ☐

1 4 आपके द्वारा पढाये गये कृषि विषय से सम्बन्धित शाखा तथा पढाने के अनुभव को दर्शाए
Please indicate the branch of agriculture subject you teach and also mention your teaching experience in it

अनुभव Experience	वर्ष Years	माह Months
(i) पेड–पौधो पर आधारित व्यावसायिक पाठयक्रम Curriculum based on plants	☐	☐
(ii) जीव–जतुओ पर आधारित व्यावसायिक पाठ्यक्रम Curriculum based on animals	☐	☐

(iii) तकनीकी पाठ्यक्रम
Technical Curriculum ☐ ☐

(iv) रासायनिक पाठ्यक्रम
Chemical Curriculum ☐ ☐

(v) कोई अन्य (कृपया स्पष्ट करे)
Any other (please specify) ☐ ☐

15.1 कृपया उन कृषि व्यावसायिक प्रशिक्षण कार्यक्रमो (सर्विस मे आने के उपरात) का विवरण दे जिनमे आपने भाग लिया है।
Please state the vocational training programmes in which you have participated after joining the service

क्रमाक S.No.	कार्यक्रम/कोर्स विषय का नाम Programme/Course/ Name of the Subject	अवधि और वर्ष Duration and year	आयोजक सस्था Organizing Institution	स्थान Place

15.1 उक्त प्रशिक्षण कार्यक्रम की उपयोगिता के बारे मे अपना मत दीजिये
Please give your opinion regarding the usefulness of the above training programme

(i) बहुत उपयोगी
Very useful ☐

(ii) उपयोगी
Useful ☐

(iii) अन-उपयोगी
Not Useful ☐

16 क्या आप अपने विद्यालय मे कृषि व्यावसायिक शिक्षण से सतुष्ट है?
Are you satisfied with the teaching of agriculture based vocational course in your school?

(i) हॉ
Yes ☐

(ii) नही
No ☐

1.6.1 यदि नही, तो कृपया असतुष्ट होने के कारण बताइये।
If no please give reasons for dissatisfaction

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2 कृषि व्यावसायिक पाठ्यक्रम से सबधित विशिष्ट जानकारी

2. SPECIFIC INFORMATION RELATED TO AGRICULTURE VOCATIONAL COURSES

2.1 आपके विद्यालय मे कौन–कौन से कृषि व्यावसायिक पाठ्यक्रम मे शिक्षण कार्य चल रहा है? कृपया बताएँ।
Please mention the names of those agriculture based vocational courses which are being offered in your school

(i)

(ii)

(iii)

2.2 आप किस कृषि व्यावसायिक पाठ्यक्रम मे शाखा मे कार्यरत है?
Which agriculture based vocational course(s) are you teaching at present?

(i)

(ii)

(iii)

(vi)

2.3 क्या आपके विद्यालय मे कृषि व्यावसायिक पाठ्यक्रम के साथ कोई अन्य विषय लेना अनिवार्य है?
Is it compulsory to take any other subject alongwith agriculture based vocational courses in your school?

(i) हाँ Yes ☐ (ii) नही No ☐

यदि हाँ कृपया उल्लेख करे।
If yes please specify

1 ____________________

2 ____________________

3 ____________________

4 आप एक हफ्ते मे कृषि व्यावसायिक पाठ्यक्रम की सैद्धाति व प्रायोगिक कक्षाए कितनी लेते है तथा एक कक्षा मे समय (घंटे) कितना दिया जाता है?

How many theory and practical classes do you take in a week in agriculture vocational course and how much time (in hours) is given to each class per week?

कोर्स का नाम Name of vocational course	कक्षाओ की संख्या No.of Classes		प्रत्येक कक्षा मे दिया जाने वाला समय Time given in each class	
	सैद्धातिक Theory	प्रायोगिक Practical	सैद्धातिक Theory	प्रायोगिक Practical

2.5 आपके विद्यालय मे कृषि व्यावसायिक पाठ्यक्रम कौन निर्धारित करता है

Who prescribes agriculture vocational curiculam in your school?

(i) राज्य परीक्षा मंडल
State Examination Board ☐

(ii) सी बी एस ई
C B S E ☐

(iii) व्यावसायिक शिक्षा मंडल
Vocational Education Board ☐

(iv) व्यावसायिक शिक्षा विभाग
Vocational Education Department ☐

2.6 क्या आपके विद्यालय मे कृषि व्यावसायिक विशेषज्ञ अंशकालिक व्यावसायिक शिक्षक के रूप मे पढाते है?

Do agriculture vocational experts take classes as part-time vocational teachers?

(i) हॉ Yes ☐ (ii) नहीं No ☐

2.7 आप कृषि व्यावसायिक शिक्षण कार्य के लिए किन–किन शिक्षण विधियो का प्रयोग करते है?

Which of the following teaching methods do you use in teaching agriculture vocational course in your school?

(i) व्याख्यान (लेक्चर) विधि
Lecture method ☐

(ii) विचार–विमर्श विधि
Discussion method ☐

(iii) पाठ्य–पुस्तको द्वारा ☐
Through text-books

(iv) प्रायोगिक गतिविधिया/अभ्यास ☐
Experiments/Exercises

(v) उपरोक्त सभी ☐
All the above

(vi) अन्य कोई (कृपया स्पष्ट करे) ☐
Any other (please specify)

____

____

____

28 कृषि व्यावसायिक शिक्षण कार्य के लिए निम्न मे से कौन–कौन सी सुविधाए उपलब्ध है?
Which of the following facilities are available for the teaching of agriculture vocational course?

(i)	उपकरण Equipments	हॉ Yes	☐	नही No	☐
(ii)	प्रयोगशाला/कार्यशाला Laboratory/Workshop	हॉ Yes	☐	नही No	☐
(iii)	भूमि Land	हॉ Yes	☐	नही No	☐
(iv)	जीव–जतु (यदि जीव–जतु पर आधारित पाठ्यक्रम है) Animals (if curriculum based on animals)	हॉ Yes	☐	नही No	☐
(v)	पानी Water	हॉ Yes	☐	नही No	☐
(vi)	पर्याप्त शिक्षक गण Adequate No of teachers	हॉ Yes	☐	नही No	☐
(vii)	सहायक स्टाफ Assisting Staff	हॉ Yes	☐	नही No	☐
(viii)	पुस्तकालय मे कृषि व्याव विषय से सम्बन्धित पुस्तके Agriculture Vocational course related books in the library	हॉ Yes	☐	नही No	☐
(ix)	पर्याप्त कक्षा–कक्ष Adequate classrooms	हॉ Yes	☐	नही No	☐
(x)	व्यावसायिक निर्देशन व परामर्श Vocational Counsellor	हॉ Yes	☐	नही No	☐
(xi)	विद्युत Electricity	हॉ Yes	☐	नही No	☐

यदि आप समझते है कि अवसरचनात्मक सुविधाएँ पर्याप्त नही है तो इसके सुधार के लिए क्या सुझाव है?
If in your opinion infrastructure facilities are inadequate then what are your suggestions for improvement?

____

____

2.9 कृषि व्यावसायिक विषय को और अधिक विकसित व प्रभावी बनाये जाने के लिये निम्न मे से किन पर ज्यादा जोर देना चाहिये
Give your opinion on the statement "Agriculture Vocational Course can be made more effective by collaborating with Industries"

	(बहुत प्रभावकारी) Very effective	(प्रभावकारी) Effective	(कुछ हद तक) To some extent effective	(अप्रभावकारी) Ineffective
(i) प्रगतिशील किसानो/ सफल उद्यमियो से वार्तालाप Conversation with progressive farmers/successful entrepreneurs	☐	☐	☐	☐
(ii) कृषि सबधित उद्योगो (क्षेत्रो) का भ्रमण Field trip to agriculture related industries	☐	☐	☐	☐
(iii) ऑन–द–जॉब ट्रेनिग On-the-job training	☐	☐	☐	☐
(iv) प्रशिक्षुता ट्रेनिग Apprenticeship training	☐	☐	☐	☐
(v) उद्यमिता विकास केन्द्र मे प्रशिक्षण Training in entrepreneurship development	☐	☐	☐	☐
(vi) विद्यालय मे ही प्रोडक्शन –ट्रेनिग (उत्पादन–प्रशिक्षण) सेंटर खोलकर। By opening production-cum-training centre in the school itself	☐	☐	☐	☐

2.11 आपके विद्यालय मे कृषि व्यावसायिक पाठ्यक्रम की पाठ्य सामग्री का स्रोत क्या है?
What is the source of instructional material for agriculture vocational course in your school? Books developed by

(i) पी एस एस सी आई वी ई (एन सी ई आर टी) PSSCIVE (NCERT) ☐

(ii) राज्य पाठ्य–पुस्तक निगम
State text-book Corporation ☐

(iii) निजी प्रकाशक
Private Publishers ☐

(iv) कोई अन्य (कृपया स्पष्ट करे)
Any other (please specify) ☐

2.12 क्या आपने अपने प्रशिक्षण कार्यक्रम के दौरान मार्गदर्शन और परामर्श का कोई अवयव (घटक) प्राप्त किय '
Did you receive any guidance and counselling during your training programme?

(i) हॉ
Yes ☐
(ii) नही
No ☐

2.13 क्या आप किसी व्यावसायिक अथवा शैक्षणिक सगठन के सदस्य है?
Are you a member of any vocational or academic organization?

(i) हॉ
Yes ☐
(ii) नही
No ☐

यदि हॉ तो कृपया सगठन का नाम स्पष्ट करे।
If yes please name the organization

2.14 वर्तमान सदर्भ मे कृषि व्यावसायिक शिक्षक प्रशिक्षण कार्यक्रम की आपके लिये अत्यन्त उपयोगिता व आवश्यकता है? क्योकि इसके द्वारा
In the present day context teacher training programme in vocational agriculture is very useful and essential for you as it provides

(i) कृषि उद्योगो मे कृषि व्यावसायिक छात्रो की आवश्यकता की जानकारी प्राप्त होती है।
Information regarding business and employment in agriculture industries ☐

(ii) कृषि क्षेत्र मे नवीनतम विकास के बारे म जानकारी प्राप्त होती है।
Information regarding latest development in the area of agriculture ☐

(iii) प्रायोगिक कार्य के लिए महत्वपूर्ण सुविधाओ की जानकारी मिलती है।
Information regarding important facilities for experimental work ☐

(iv) छात्रो को प्रायोगिक ज्ञान व कुशलताओ (प्रवीणता) प्रदान करने मे सहायक होती है।
Useful in providing experimental knowledge and skills (competencies) to students ☐

(v) छात्रो को पढाने के लिए अधिक प्रभावकारी स्थिति बनाने मे उपयुक्त है।
In creating more effective environment for teaching ☐

(vi) अपने विषय के बारे मे और अधिक ज्ञान व अनुभव प्राप्त करने के लिए।
For obtaining more knowledge and experience on one's own subject ☐

(vii) कृषि व्यावसायिक पाठ्यक्रम की आधुनिक स्थिति समझने के लिए उचित है।
For obtaining latest know how in agriculture technology ☐

(viii) उपकरणो का उपयोग करने की और अधिक जानकारी प्राप्त करने के लिए।
For obtaining more information regarding the use of equipments ☐

2.15(a) कृपया कृषि व्यावसाय विषय की पाठ्य सामग्री की उपलब्धता के बारे मे अपने विचार दे।
Please give your views regarding the availability of the instructional materials in agriculture vocational subject

		पर्याप्त Adequate	अपर्याप्त Inadequate	उपलब्ध नही Not available
(i)	पाठ्य पुस्तक Textbooks	☐	☐	☐
(ii)	प्रायोगिक पुस्तिका (मैनुअल) Practical Manual	☐	☐	☐
(iii)	शिक्षक गाइड Teacher Guide	☐	☐	☐
(iv)	संदर्भ–पुस्तक Reference book	☐	☐	☐
(v)	कोई अन्य (कृपया स्पष्ट करे) Any other (please specify)	☐	☐	☐

____

____

2.15(b) यदि पाठ्य–सामग्री अपर्याप्त है तो आप पाठ्यक्रम के लिए कैसी व्यवस्था करते हैं?
In case instructional material available is inadequate how do you manage it?

(i) संदर्भ–पुस्तक से तैयार नोटस ☐
Preparing notes from reference books

(ii) अन्य संबंधित विषयो की पाठ्य–पुस्तको का उपयोग ☐
Use of text-books in other related subjects

(iii) कोई अन्य (स्पष्ट करे) ☐
Any other (please specify)

____

____

2.16 क्या राज्य मे कृषि व्यावसायिक पाठ्यक्रम के प्रभावी कार्यान्वयन के लिए सेमेस्टर /मॉड्यूल प्रणाली अपनानी चाहिए? कृपया कारण सहित स्पष्ट करे।
Should we adopt semister/module system for effective implementation of agriculture vocational courses in the State? If yes please give reasons

____

____

____

____

2 17 विद्यालय में कृषि व्यावसायिक विषय के कार्यान्वयन को अधिक प्रभावी व ग्राह्य बनाने के लिए आपके क्या सुझाव है?
Please give your suggestions to make the implementation of agriculture based vocational education more effective and acceptable in your school

1 ____________________

2 ____________________

3 ____________________

2 18 क्या आप वर्तमान पाठ्यक्रम के माध्यम से उत्तीर्ण होने वाले छात्रो मे विकसित निपुणता और योग्यताओ से संतुष्ट है?
Are you satisfied with the competencies developed in the students in the students passing the present curriculum?

(i) हॉं Yes ☐ (ii) नहीं No ☐

संपर्क पता

डॉ वी एस मेहरोत्रा
प्रमुख अनुसंधानकर्त्ता,
कृषि प्रभाग
पं सुन्दरलाल शर्मा केन्द्रीय व्यावसायिक शिक्षा संस्थान,
131 जोन - II एम पी नगर भोपाल - 462 011
दूरभाष 0755-558160
फैक्स 0755-558128
ई मेल psscive@mp nic in

Contact Address

Dr V S Mehrotra,
Principal Investigator
Division of Agriculture
PSS Central Institute of
Vocational Education NCERT
131 Zone II M P Nagar Bhopal-462 011
Tel 0755-558160
Fax 0755-558128
E mail psscive@mp nic in

Annexure – V

विद्यार्थी
Student

पं. सुंदरलाल शर्मा केन्द्रीय व्यावसायिक शिक्षा संस्थान
PSS CENTRAL INSTITUTE OF VOCATIONAL EDUCATION

131, जोन–II, महाराणा प्रताप नगर, भोपाल–462011

131 Zone II, M.P Nagar, Bhopal - 462011

विद्यार्थी के लिए प्रश्नावली
QUESTIONNAIRE FOR VOCATIONAL STUDENT OF SCHOOL

प्रोजेक्ट शीर्षक कृषि आधारित व्यावसायिक शिक्षा के अध्यापन–अध्ययन की स्थिति व प्रभाव का तुलनात्मक अध्ययन (एरिक, एन सी ई आर टी नई दिल्ली द्वारा प्रवर्तित)

Project-Title Comparative study of the status and effectiveness of vocational teaching-learning in agriculture

(Sponsored by ERIC NCERT New Delhi)

नोट - कृपया निम्न जानकारी दे एवं आवश्यकतानुसार उपयुक्त उत्तरो पर सही (√) का चिन्ह लगाए ।

NOTE - Kindly provide the following information related to Agriculture based Vocational Courses only Wherever required put a tick mark on the applicable answers

1 सामान्य जानकारी
GENERAL INFORMATION

1.1 विद्यार्थी का नाम ______________________________
Name of the student

1.2 कक्षा XI ☐ XII ☐
Class

1.1.3 10वी कक्षा उत्तीर्ण करने का वर्ष ______________________________
Year of passing class X

1.1.4 परीक्षा परिणाम प्रतिशत ______________________________
Percentage of marks in Class X

1.1.5 आयु ______________ वर्ष
Age years

1.1.6 लिंग
Gender

(i) बालक Male ☐

(ii) बालिका Female ☐

1.7 संस्थान/विद्यालय का नाम एवं पता ______________________________
Name and address of Institution/School
____

1.8 जिला/जनपद ______________________________
District/Town

1.9 पिनकोड ______________________ राज्य ______________________
Pin State

1.10 आवासीय पृष्ठभूमि
Residential background (i) गांव Village ☐ (ii) शहर/नगर City/Town ☐

1.11 धर्म ______________________________
Religion

1.12 जाति ______________________________
Caste

1.13 वर्ग
Category
(i) अनुसूचित जाति SC ☐ (ii) अनुसूचित जन-जाति ST ☐
(iii) अन्य पिछड़ा वर्ग OBC ☐ (iv) सामान्य General ☐

2 कृषि व्यावसायिक पाठ्यक्रम से संबंधित विशिष्ट जानकारी SPECIFIC INORMATION ABOUT AGRICULTURE BASED VOCATIONAL COURSES

2.1 अध्ययनरत कृषि व्यावसायिक पाठ्यक्रम का नाम –
Name of the agriculture based vocational course which you are studying -
____

2.2 आपने कृषि व्यावसायिक विषय में 11वीं कक्षा में कितने अंक अर्जित किये?
Pass percentage at the time of joining the present course and the marks abtained?

(i) 11वीं कक्षा ______________________________ %
11th Class

2.3 आपने कृषि व्यावसायिक विषय में प्रवेश क्यों लिया, कृपया उचित कारण पर चिन्ह लगाएं।
Why did you join the vocational course? [please tick (√) on the appropriate reason(s)]

(a) इस विषय में प्रवेश के लिए सुझाव दिया
It was suggested to me by the

- (i) परामर्शदाता Counsellor ☐
- (ii) शिक्षक/व्यावसायिक शिक्षक Teacher/Vocational teacher ☐

(iii) प्राचार्य
Principal ☐

(vi) अभिभावक
Parents ☐

(iv) मित्र-गण
Friends ☐

(vii) स्वेच्छा से
Own Interest ☐

(v) जन–समूह माध्यम (रेडियो, समाचार पत्र, दूरदर्शन)
Mass Media (Radio Newspaper T V) ☐

(viii) अन्य कोई (कृपया स्पष्ट करे)
Any other (please specify) ☐

____

(b) मेरी अकादमिक शिक्षा के प्रति रुचि नहीं थी
I was not intersted in academic studies ☐

(c) मुझे अन्य कही प्रवेश प्राप्त नही हुआ।
I could not get admission anywhere else ☐

(d) परिवार को सहयोग के उद्देश्य से शीघ्र रोजगार प्राप्त करना चाहता हू।
To get early job for supporting my family ☐

(e) स्व–रोजगार के लिए यह सबसे अच्छा कार्यक्षेत्र है।
Better prospects for self- employment ☐

(f) परिवार से आर्थिक सहायता अपर्याप्त है।
Inadequate financial support from family ☐

(g) कोई अन्य (कृपया स्पष्ट करे)
Any other (specify) ☐

____

2 4 क्या आपके विद्यालय मे व्यावसायिक कृषि पाठयक्रम के साथ आधारभूत पाठयक्रम (जी एफ सी) पढाया जाता है?
Whether the General Foundation Course is also — being taught along with the agriculture based vocational course in your school?

(i) हॉं
Yes ☐

(ii) नही
No ☐

2 5 आपको व्यावसायिक कृषि पाठ्यक्रम के साथ–साथ कौन सी भाषा पढाई जाती है?
Which languages are being taught along with agriculture based vocational course in your school?

(i) हिन्दी
(i) Hindi ☐

(ii) अंग्रेजी
English ☐

(iii) क्षेत्रीय भाषा
Regional language ☐

26 आप को निम्नलिखित कृषि व्यावसायिक पाठ्यक्रम के घटको को समय–सारणी मे प्रति सप्ताह कितने घटे मिलते है? उल्लेख करें।
Describe the time period given to the following components of agriculture based vocational course in a week

(i) भाषा ______________________
Language

(ii) सामान्य आधारभूत पाठ्यक्रम (जी एफ सी) ______________________
General Foundation Course (GFC)

(iii) कृषि व्यावसायिक पाठयक्रम (सैद्धांतिक) ______________________
Agriculture based vocational course (Theory)

(iv) कृषि व्यावसायिक पाठ्यक्रम (प्रायोगिक) ______________________
Agriculture based vocational course (Practical)

(v) ऑन–द–जॉब ट्रेनिंग (ओ जे टी) ______________________
On-the-job training (O J T)

27 कृपया निम्न कथनो को 5 बिन्दु मापनी पर मूल्यांकन कीजिए।
Tick the number (1 to 5) given against provide each item to your option according to the rating scale

5 = सर्वश्रेष्ठ 4 = अच्छा 3 = औसत 2 = औसत से कम 1 = अपर्याप्त
5 = Excellent 4 = Good 3 = Average 2 = Below average 1 = Poor

(i) शिक्षक का पढ़ाने का तरीका व मौखिक प्रस्तुतीकरण Teacher's speaking ability and oral presentation	5	4	3	2	1
(ii) शिक्षक का कृषि व्यावसायिक पाठयक्रम की ओर उत्साह व रुचि Teacher's enthusiasm and interest in subject (agriculture based vocational course)	5	4	3	2	1
(iii) कृषि व्यावसायिक पाठ्यपुस्तक की गुणात्मकता Reference and usefulness of the textbook (agri based voc course)	5	4	3	2	1
(iv) कक्षा मे व्याख्यान (लेक्चर) और विचार–विमर्श की उपयोगिता Utility of lectures and class discussions	5	4	3	2	1
(v) परीक्षा का औचित्य और उसकी निष्पक्षता Fairness and appropriateness of examinations	5	4	3	2	1
(vi) पाठ्यक्रम का सयोजन व सम्पादन Organization of the course	5	4	3	2	1
(vii) व्याख्यान की व्यवस्था तथा समय निर्धारण। Organization of lectures	5	4	3	2	1
(viii) शिक्षक की योग्यता Competency (knowledge and skills) of teacher	5	4	3	2	1

28 क्या शिक्षक आपको कृषि व्यावसायिक पाठयक्रम की यथोचित तथा सही जानकारी देते है?
Do the teacher(s) give the appropriate knowledge and skills in the agriculture based vocational course?

(i) हाँ Yes ☐ (ii) नही No ☐

2.9 क्या आपको इस पाठ्यक्रम के उद्देश्य के बारे मे जानकारी है?
Do you know about the objectives of agriculture based vocational course which your are studying

(i) हॉ Yes ☐ (ii) नही No ☐

यदि हॉ तो कृपया मुख्य उद्देश्यो को स्पष्ट करे
If yes please specify the main objectives

1 ____________________

2 ____________________

3 ____________________

4 ____________________

2.10 कृपया निम्न सामग्रियो की आपके विद्यालय म उपलब्धता का दिये गये बिन्दुओ के अनुसार मूल्याकित कर।
Please tick the materials available in your school

		उपलब्ध है Available	उपलब्ध नही है Not available
(i)	कार्यशाला/प्रयोगशाला Workshop /Laboratory	☐	☐
(ii)	पुस्तकालय मे (कृषि व्या विषय की) पुस्तके Library (Text-books of agri based voc courses)	☐	☐
(iii)	कृषि फार्म Agriculture farm	☐	☐
(iv)	पशु–पक्षी (यदि जीव–जतु पर आधारित पाठ्यक्रम है) Animals (If animal based vocational course)	☐	☐
(v)	पर्याप्त कक्षा कक्ष Adequate classrooms	☐	☐
(vi)	कृषि व्या पाठ्यक्रम सबन्धित उपकरण Relevant equipments for (agri based vocational course)	☐	☐
(vii)	प्रायोगिक कार्य के लिए पर्याप्त ससाधन Facilities for doing practical work	☐	☐
(viii)	कोई अन्य (कृपया स्पष्ट करे) Any other (please specify)	☐	☐

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2.11 आपको कृषि व्यावसायिक पाठ्यक्रम मे प्रवेश किस आधार पर प्राप्त हुआ?
On what basis you have been given admission to the vocational course?

(i) चयन–परीक्षा के आधार पर
On the basis of selection test ☐

(ii) कक्षा दसवीं के प्राप्ताक के आधार पर
Percentage of marks in Class X ☐

(iii) आपकी रुचि के अनुसार ☐

(iv) योग्यता व क्षमता परीक्षा के आधार पर
Ability and aptitude test ☐

(v) अन्य कोई (कृपया स्पष्ट करे)
Any other (please specify) ☐

____

____

2 12 आपके कृषि व्यावसायिक शिक्षक मे निम्न योग्यताएँ किस स्तर तक उपस्थित है?
Please tick the competencies possessed by your vocational teacher (agriculture based vocational courses)

(a) कृषि व्यावसायिक योग्यता।
Competencies (knowledge & skills) in agriculture

(i)	बहुत अच्छी Very good	☐	(ii)	अच्छी Good	☐
(iii)	साधारण Fair	☐	(iv)	कम है। Poor	☐

(b) सम्प्रेषण (सचारण) योग्यता।
Communication skills

(i)	बहुत अच्छी Very good	☐	(ii)	अच्छी Good	☐
(iii)	साधारण Fair	☐	(iv)	अपर्याप्त है। Poor	☐

(c) छात्रा के प्रति व्यवहार।
Attitude toward students

(i)	सकारात्मक Positive	☐	(ii)	नकारात्मक Negative	☐
(iii)	अनियमित Uneven	☐	(iv)	कुछ कह नही सकते है। Can't say	☐

(d) व्यावहारिक ज्ञान
Practical knowledge

(i)	बहुत अच्छा Very good	☐	(ii)	अच्छा Good	☐
(iii)	साधारण Fair	☐	(iv) (vi)	अपर्याप्त है। Poor	☐

2 13 निम्न गतिविधियो मे से जिनमे आप सलग्न रहे उन पर (√) का चिन्ह लगाइये।
Please tick the activities in which you are actively engaged

(i) ऑन–द–जॉब ट्रेनिग
On-the-Job Training ☐

(ii) विद्यालय मे प्रायोगिक गतिविधि
Lab work in school ☐

(iii) उत्पादन सह–प्रशिक्षण केन्द्र से सबधित गतिविधि
Activities related to Production-cum-training centre ☐

(iv) कृषि सबधित फार्म उद्योगो का भ्रमण
Visit to agricultural farm/field ☐

(v) प्रगतिशील किसानो/सफल उद्यमियो से वार्तालाप
Interaction with progressive farmers/successful entrepreneurs ☐

(vi) कैरियर प्रदर्शनी
Participation in Careers exhibition ☐

(vii) अन्य कोई (कृपया स्पष्ट करे)
Any other (please specify) ☐

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____

2 14 कृषि व्यावसायिक पाठ्यक्रम मे प्रवेश लेने के अपने निर्णय के बारे मे अब आप कैसा सोचते है?
Do you feel your decision to join the vocational course was right?

(i) सही है
Yes ☐

(ii) गलत है
No ☐

यदि सही है तो कृपया उपयुक्त कारण मे चिन्ह लगाए–
If yes please tick the appropriate reason

(i) मै अच्छा प्रायोगिक प्रशिक्षण प्राप्त कर रहा हू।
I am getting good practical training ☐

(ii) मुझे शीघ्र वेतन रोजगार प्राप्त हो जायेगा।
I will get a job immediately ☐

(iii) अब मै अपना स्व–रोजगार स्थापित कर सकता हू।
I can now set up my own business / enterprise ☐

(iv) मै अपने पैतृक व्यवसाय को नियोजित कर सकता हू।
I can now look after my parental business ☐

(v) अब मै उच्च शिक्षा मे प्रवेश ले सकता हू।
I can now get admission in a degree diploma course ☐

(vi) कोई अन्य (कृपया स्पष्ट करे)
Any other (please specify) ☐

____

____

यदि नही तो कृपया उपयुक्त कारण दे।
If no, please tick the appropriate reason

(i) कृषि क्षेत्र मे रोजगार की सभावना नही है।
There are no employment opportunities in the field in which I have specialised ☐

(ii) मुझे अपने पाठ्यक्रम मे पर्याप्त प्रायोगिक प्रशिक्षण प्राप्त नही हो रहा है।
I did not get enough practical training in the vocational course ☐

(iii) यहाँ पर शिक्षा केवल सैद्धातिक है।
The teaching is mainly theoretical ☐

(iv) पाठ्यक्रम मान्यता प्राप्त नही है।
The Course is not recognised ☐

(v) कोई अन्य (कृपया स्पष्ट करे)
Any other (please specify) ☐

2.15 क्या आप कृषि व्यावसायिक पाठ्यक्रम की दो वर्ष की अवधि से सतुष्ट है?
Are you satisfied with the present duration of 2 years for the vocational course?

(i) हॉ Yes ☐ (ii) नही No ☐

यदि नही तो आपके विचार से कितनी अवधि होनी चाहिए?
If No What should be the duration for the agriculture based vocational course

(a) दो वर्ष से अधिक (स्पष्ट करे)
More than 2 years (specify) ☐

(b) एक वर्ष
One year ☐

(c) छह महीने
6 Months ☐

(d) कोई अन्य (स्पष्ट करे)
Any other (specify) ☐

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